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ABSTRACT

Following a referral from the March 2000 Annual General Meeting of the British Columbia (B.C.) Teachers' Federation, the Spring 2000 Representative Assembly passed a motion that recommended research be collected, conducted, and disseminated on the current status of students in the province. This research report identifies current information on the status of male and female students B.C.--or Canada or another jurisdiction when B.C. data are not available--before and after completing or leaving the public school system. The report's primary purpose is to provide accurate and timely data to inform public dialogue about the experiences of males and females in B.C.'s public education system. Following a discussion of perceptions of the issue in other jurisdictions and certain conceptual issues, the report presents general demographics for students as well as teachers, administrative officers, and other educators. Graduation standings and dropout rate are also included. The most recent data are identified to create a picture of gender issues related to course choices and achievement. Post-secondary attendance and faculty enrollment at universities and colleges are also addressed. A section entitled "Health" includes information on sex education in the province and other health issues. The "Crime and Violence" section depicts differences in male and female criminal behavior and victimization. The final section, "Economic and Labor Indicators," provides a general comparison of male and female social and economic statuses. The report concludes with a summary and discussion of the findings. (Contains an extensive bibliography, 29 tables, and 8 figures.) (BT)

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G.I. Joe Meets Barbie, Software Engineer Meets Caregiver: Males and Females in B.C.'s Public Schools and Beyond
BCTF Research Report

Anne C. Schaefer

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Males and females in B.C.'s public schools and beyond

BCTF Research Report

Anne C. Schaefer

September 2000

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SECTION IV
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www.bctf.bc.ca/ResearchReports/2000sd03

September 2000

by Anne C. (Anny) Schaefer
BCTF Research Department

RT00-0045
September 2000

Errata sheet, BCTF Research Report 2000-SD-03:

G.I. Joe meets Barbie, software engineer meets caregiver: Males and females in the B.C. public school system and beyond

page 50:

- 39% of males and 24% of males have been threatened with physical harm;

should read

- 39% of males and 24% of females have been threatened with physical harm;

Please refer to the BCTF web site, where this report is available online in both html and pdf formats. See the revision history here for future updates and links to new information.
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Preface

Following a referral from the March 2000 Annual General Meeting (AGM) of the B.C. Teachers' Federation (BCTF), the Spring 2000 Representative Assembly passed the following motion:

> **Recommendation 12 (submitted to the AGM by the Surrey Teachers' Association, Terrace District Teachers' Union, New Westminster Teachers' Union, and Burnaby Teachers' Association)**
>
> That research be collected, disseminated and where necessary, conducted on the current status of male and female students in the province, including but not limited to:
>
> - graduation standings
> - course enrolment in high school
> - drop-out rate
> - post-secondary attendance
> - faculty enrolment at university/college
> - availability of sex education/sexual health education courses.
>
> ***Supporting statement***
>
> There has been great attention paid to the assertion that boys are not doing well in schools. Part of that may be that boys are socialized in a particular way and are stereotyped by their gender just as girls are. It is important for teaching practitioners to know what is actually happening in terms of gender stereotyping in our schools. As teachers, we want both boys and girls to succeed. Research would certainly help to assist our teaching practices and attitudes when working with girls and boys.

This research report is not meant to be comprehensive. Rather, it draws together some of the information that currently exists on the status of male and female students in British Columbia—or Canada or another jurisdiction when B.C. data are not available—before and after completing or leaving the public school system. **The primary purpose of this report is to provide accurate and timely data to inform public dialogue around the experiences of males and females in B.C.'s public-education system.**

Following a discussion of perceptions of the issue in other jurisdictions, and certain conceptual issues, general demographics are presented for students ("Enrolment") and teachers, administrative officers, and other educators ("Educators"). Graduation standings and drop-out rate have been combined into one section, "Secondary school completion." Secondary school course enrolment by gender is no longer collected; the most recent data, as well as other indicators, are presented in "Course enrolment and achievement" to create a picture of gender issues related to course choices and achievement.

"Special needs and gender" summarizes special needs designations among male and female students. Post-secondary attendance and faculty enrolment at universities and colleges are both included in "Post-secondary indicators." A section entitled "Health" includes information on sex education in the province as well as a number of other health issues. "Crime and violence" depicts differences in male and female criminal behaviour and victimization. Finally, "Economic and labour indicators" compares male and female social and economic status more broadly.

The report concludes with a summary and discussion of the findings.

Introduction

> *Biologically, men certainly seem to be the weaker sex. Although one would expect there to be an equal chance of the foetus being a boy or girl, it appears that the ratio for boys is about 20 percent higher, yet only about the same number come to term. This greater tendency for male foetuses to be aborted carries on, with more boys stillborn and susceptible to congenital or inherited conditions, such as haemophilia, cerebral palsy, convulsions, or heart disease. In adulthood, men have greater vulnerability to virus infections and a shorter average lifespan.*
>
> *—Jed Bland*

Girls' needs in school were the hot topic of the 1990s, starting with the American Association of University Women's 1992 bellwether examination, *The AAUW report: How schools shortchange girls*. But the pendulum has swung and boys' educational concerns are all the rage these days. From Washington, D.C. to Nottingham to Victoria, educators, parents, and the media are talking about the plight of boys in schools.[1]

United States

Recently, the U.S. National Education Goals Panel summarized one writer's concerns about the "new gender gap" as follows:

- girls have just about caught up to boys in math and science, while boys continue to lag behind girls in reading and writing;
- fewer boys than girls go on to college;
- the number of boys seeking higher degrees also has dropped drastically;
- girls outnumber boys in extracurricular academic activities, such as honor societies and student government;
- in 1998-1999, boys took fewer Advanced Placement tests than girls;
- boys are diagnosed with Attention Deficit Disorder nearly 10 times as often as girls;
- boys outnumber girls in special education classes, 3 to 1; and

[1] Some commentators, of course, take it a step further to bash public education in general. For example: "Recent reports have confirmed that boys, not girls, are increasingly on the unfavorable side of the gender gap in education and developmental matters.... (T)he real news that appears in both educational research and media stories is that *both* boys and girls are now being 'shortchanged' in school" (Riordan, 1999).

- boys receive an overwhelming majority of all school suspensions. ("Boys just", 1999)

A bevy of books, reports, and articles published in the United States echoes—and debates—these concerns. On April 25, 2000, the renowned National Center for Education Statistics (NCES) issued a report requested by Congress, *Trends in educational equity of girls and women*. The report considered 44 indicators, noting that certain important issues could not be addressed with currently available data, including the influence of sexual harassment on the learning environment, textbooks' and other learning materials' (lack of) representativeness of the experiences of females, and the extent to which females are encouraged to challenge themselves in their studies, particularly in mathematics and science. Their findings, which were mixed, included the following:

- "Boys and girls start school on a similar footing in terms of at least some learning opportunities. In some other areas, girls appear to start school ahead." (p. 2)
- "Girls seem to have fewer problems with school in the early grades than do boys." (p. 3)
- "Females and males are about equally likely to drop out of high school." (p. 3)
- "Females have consistently outperformed males in reading and writing." (p. 4)
- "There are more gender differences favoring male students in mathematics and science." (p. 4)
- "Achievement gaps appear more closely related to attitudes than to course taking." (p. 5)
- "Females are just as likely as males to use computers at home and at school." (p. 6) (The report also notes that males and females tend to use computers for different purposes.)
- "Males and females tend to participate in different types of extracurricular activities." (p. 7)
- "Females are more active than males in community service activities." (p. 7)
- "Female high school seniors tend to have higher educational aspirations than their male peers." (p. 7)
- "Females are more likely than males to enrol in college in the fall after graduating from high school." (p. 7)
- "A majority of undergraduates are women." (p. 8)
- "Women make up the majority of graduate, but not first-professional, students." (p. 8)

- "Women are more likely than men to persist and attain degrees." (p. 8)
- "Male and female bachelor's degree recipients tend to choose different majors." (p. 9)
- "Women have made substantial progress at the graduate level overall, but still earn fewer than half of the degrees in many fields." (p. 9)
- "Gender differences in participation rates in collegiate sports have narrowed." (p. 10)
- "Women ages 25-64 have lower labor force participation rates than men, regardless of education, but participation increases with education." (p. 10)
- "Among adults ages 25-34, women are less likely than men to be employed, but the gap has narrowed over time." (p. 10)
- "Women with bachelor's degrees tend to earn less than men with the same level of educational attainment, but the gap is narrowing." (p. 10)
- "Women generally receive a greater earnings advantage from post-secondary education than men." (p. 11)
- "Women are more likely than men to participate in adult education." (p. 11) (Bae, Choy, Geddes, Sable, & Snyder, 2000)

University of Alaska Fairbanks psychology professor Judith S. Kleinfeld disputes the federal report's assumptions and conclusions: "They are perpetuating the myth that girls were behind and have now caught up. They assume a problem that wasn't there, and then claim victory" (Bowman, 2000). According to Kleinfeld, the differing interests of males and females should be respected; young women should be encouraged to study subjects they will find satisfying rather than be shunted into fields such as engineering and computer science.

Christina Hoff Sommers, a fellow at a conservative think tank, the American Enterprise Institute, authored *The war against boys: How misguided feminism is harming our young men*. According to Sommers, males are being pathologized by a system that does not understand masculinity and that, in fact, dismisses boys if they cannot be molded into replicas of their female classmates. In other words, there is a "poor fit between most schools and most boys" (Viadero, 1998). William S. Pollack is one researcher at whom she would look askance: the co-author of *Real boys* and *Real boys' voices: America's young men talk about their lives* fears that today's boys and young men feel so alone that they may "channel their despair into rage not only toward others but towards themselves" (Pollack & Shuster, 2000). Pollack refers to a "national crisis in the lives of boys" (Viadero, 1998). Similarly, Dan Kindlon and Michael Thompson, in *Raising Cain: Protecting the emotional life of boys*, ascribe many of boys' problems to lack of emotional literacy.

United Kingdom

In the United Kingdom, articles and responses to those articles on the topic of boys and schools have emblazoned the pages of *The Times Educational Supplement* (TES) for several years. The lead researchers on the University of Nottingham's Children's Reading Choices project contended that, while girls may read more than boys, boys are "advantaged by what they read." Christine Hall and Martin Coles said, "(Girls) are not necessarily developing competence (in) technical and factual reading, information sifting and selection.... We cannot afford to be complacent about girls' reading or to adopt simplistic approaches towards (meeting) the needs of one sex (at the moment boys) in isolation from the habits and experience of the other sex" (Brennan, 1998).

The contributors to *Failing boys? Issues in gender and achievement* (Epstein, Elwood, Hey, & Maw, 1998) believe that boys have been "underachieving" for a long time, perhaps centuries, and wonder why the problem is suddenly of such great concern ("Rogue males?", 1999). Several reasons are cited. Changes in the economy and labour market mean that undereducated males no longer have the same opportunities they did even 10 or 20 years ago: "Large number of unemployed young men are perceived as a social threat." Some of the barriers to women's achievements have been removed. Finally, there has been "a sharp narrowing of definitions of school-based achievement, combined with increasing concern about it."

The authors identify three main forms of the boys and schooling debate. In "poor boys" stories, young males are victims of feminist ideology and teachers; the remedy is changing curriculum and teaching methods to engage boys. Schools have also been blamed for boys' poor performance, leading, in Britain at least, to "punitive inspection processes, hit squads and action zones." Finally, boys' poor performance can be said to result from their innate "laddishness" (the "boys will be boys" argument); the solution, again, is changing curriculum and teaching, and girls are often enlisted to tame the beasts. Rather than going down these dead-end roads, the authors suggest acknowledging the complexity of the situation, *not* transferring resources from females to males, *not* encouraging boys to be macho, and researching the conflicting demands on boys and the different ways students learn.

In 1998, English literacy tests of 11-year-olds revealed a widening gap between achievement of boys and girls (Cassidy, 1999a). Girls were fuelling the race to meet the government's targets, while boys were left behind: Boys' performance lagged that of girls by 18 percentage points or more in almost a third of local authorities. The report mentions briefly, however, that 11-year-old boys are keeping up with girls in mathematics. By 1999, boys had narrowed the "gender gap" in English from 16.2 to 10.7 percentage points (Bunting, Constantine, & McTaggart, 1999). The dramatic one-year increase doubtless says more about the vagaries of standardized testing than anything else, but the improvement has been attributed to reforms such as a "literacy hour," which could be construed as a time of teaching to the test. According to one inspector, "In the case of boys, very focused and directed teaching

with known targets is something we all know they respond to well" (Bunting, Constantine, & McTaggart, 1999). In one district, just over 50% of boys achieved the target level in 1997 compared to 93% in 1999. Some of the factors identified as being responsible for the turnaround included "raising parental awareness and encouraging fathers to take part in reading workshops; buying books that would appeal to boys; monitoring boys' book choices and steering them towards more varied literary fare; and allocating male teachers to under-performing boy readers" (Thornton, 1999).

A respected educational consultant provoked more controversy when he suggested that boys' improved reading scores resulted from the test's boy-friendly content—three short readings about spiders—in contrast to the previous year's 850-word literary passage about war-time evacuation: "(T)eachers have said many boys simply never got to the end" (Hackett, 1999). Peter Downes warns again ministers "(making) grandiose claims from one year's results. Results need to be interpreted with caution or it is possible that the blame for any future under-performance by boys could be placed at the door of teachers." The Qualifications and Curriculum Authority (QCA) later studied the results and determined that boys excel at clear-cut, specific, fact-based questions where they need not explain their thinking or interpret information (Cassidy, 2000). The QCA, however, insists that "the 1999 tests were, as always, extensively trialled to ensure they were equally friendly for all children" (Cornford, 2000).

The TES also reported recently that, for the first time since A-levels began nearly 50 years earlier, females' average scores exceeded males' in 1998. Females also got more As in English and history, once the province of males, and won more A* grades. Males, however, were slightly more likely to get at least three A grades; they also excelled at physics, maths, computer studies, economics, modern languages, and classical studies (Cassidy, 1999b). A university professor questioned the TES's interpretation of these results, pointing out that once adjustments were made for differing entry rates, there was virtually no difference between boys' and girls' performance on A-levels over the previous six years (Gorard, 1999).

British Columbia

In 1997, Superintendent Ron Rubadeau of School District 23 (Central Okanagan) broached the subject of boys' educational underperformance in B.C. In a presentation to the provincial Staffing and Class Size Review Committee, he provided data that indicated boys outnumbered girls by 11 to 1 in the special education severe behaviour category, 5 to 1 in severe learning disabled, and 3 to 1 in speech pathology in that district. Boys also outranked girls in suspensions, dropping out, failing grades, and incarceration. On the other hand, girls outnumbered boys 5 to 1 in gifted programs, 5 to 1 on the honour roll and 3 to 1 on district scholarships (Staffing and Class Size Review Committee, 1997). Rubadeau repeated his concerns a few years later, pointing out the risks faced by boys and girls beginning

Kindergarten in the Central Okanagan. Within their first year of formal schooling, he said, 90 of the 735 boys (12.2%) compared to only 20 of the 765 girls (2.6%) would require student support services or be considered at risk for learning.[2] There is not enough help for these boys, he said, who are "deprived by gender of the social and academic gifts of their sisters," "to fix the inherent developmental distance between the maturational rates of young boys and girls" (Rubadeau, 2000).

BCTF staff member Pat Clarke (1997) observed in the *Teacher* newsmagazine that girls were walking away with almost all the honours at the school where he taught. When asked why, a colleague said it was because girls "work harder." While Clarke notes that many of the problems boys are experiencing are not new, what is new is that "boys used to catch up the girls; now they don't." Clarke says today's boys have "retired to a leisured existence of watching televised sport and playing electronic games. They have been anesthetized by a 'boy culture' that celebrates bravado, lassitude, and stupidity."

The Fraser Institute also jumped into the fray, comparing Grade 12 provincial examination results to school-based marks. While boys outperformed girls on 5 of the 8 most common provincial exams, they garnered fewer points on their school marks in all 8 subjects. "The results show that girls and boys do not, on average, fair [sic] equally well in our secondary schools" (Cowley & Easton, 1999).

Conceptual issues

A number of conceptual issues related to scope and research methods need to be addressed.

Definitions

As the following definitions from other sources make clear, this report is concerned with *both* **sex** and **gender**, although, if we believe that the former is primarily biological ("nature") and the latter primarily learned ("nurture"), no one is really sure how much, and what, each contributes. Or, as Bland (1998) put it: "Commonality across cultures and species implies some biological basis. The fact that the situation is changing reflects the power of socialisation."

---

[2] Information on special needs enrolment by grade and gender is unavailable; however, unpublished figures from the Ministry of Education's *Student Level Data Collection*, Fall 1999 (MoE, 1999h), indicate that 3.0% of *all* boys in Central Okanagan schools are in Gifted programs, compared to 3.4% of all girls. In the Non-Gifted Special Needs categories, 5% of girls are identified compared to 9.3% of boys. Differences in rates are most pronounced in the behaviour programs (severe, moderate, and rehabilitation) and in the Severe Learning Disabilities program; for example, the rate of Severe Behaviour designation for boys was 3.6 times that for girls while the corresponding ratio for Severe Learning Disabilities was 1.9.

Merriam-Webster defines **sex** as: "either of the two major forms of individuals that occur in many species and that are distinguished respectively as female or male" while **gender is** "the behavioral, cultural, or psychological traits typically associated with one sex" (Merriam-Webster's Collegiate Dictionary, 2000).

The World Health Organization expands upon these definitions:

> In biological commonsense terms, what distinguishes women from men are the differences between their reproductive systems. These anatomical and hormonal variations are the basis upon which individuals are allocated to a particular sex. However, they represent only a part of the complex set of criteria by which we all learn to distinguish femaleness from maleness. Equally important are the socially defined characteristics that different cultures assign to those individuals defined as female and those defined as male, i.e., gender. (World Health Organization, 1998)

The Lesbian, Bisexual, Gay and Transgender communities counsel that we need to be alert to complexity in the area of sex and gender. With rising awareness of, and concern about, heterosexism and homophobia in B.C. schools, their advice is timely and of crucial concern for areas such as sexuality ("family life") education: "Sex, gender identity, and sexual identity refer to different aspects of oneself. Therefore, one may be any combination of sex (male/female), gender (masculine/feminine), and sexual identity (straight, bisexual, lesbian/gay)" (Hamilton & Louise, 1994).

Which outcomes?

In the debate over whether boys are falling behind, it is useful to spell out the range of outcomes that can be considered and compared. These include education-related, post-education, and coinciding outcomes; many could be assigned to more than one category. Here are some examples:

Education-related outcomes

Special needs (e.g., 4 times as many boys as girls are diagnosed with autism)
Grades/grade point average (GPA)
Course choices (e.g., humanities or technical)
Citizenship/community involvement
Secondary school: complete or drop out
Post-secondary attendance
Post-secondary program choices

Post-education outcomes

Economic self-sufficiency
Labour market participation
Career satisfaction
Working conditions
Life satisfaction/balance

Coinciding outcomes

Health:
Nutrition/eating disorders
Suicide
Self-esteem
Alcohol, tobacco, drug use/abuse
Body image
Sexual activity
Pregnancy
Fitness/physical activity

Social:
Crime—victim
Crime—perpetrator
Friendships
Intimate relationships
Family relationships

This non-exhaustive list includes goals that could be considered "intermediate" or "ultimate" depending on one's point of view and values. While this report does not consider all of these factors, they provide a framework for discussion of some of the issues surrounding gender and education.

Identification

Identification, especially under-identification of males or females on any given condition, is also a major issue. Some conditions are most certainly sex-linked, in other words, they are determined by the sex chromosomes. Examples of conditions that are rare or unknown in females but more common in males include red-green colour blindness, haemophilia, Duchenne Muscular Dystrophy, and Fragile X Syndrome, the most common cause of inherited intellectual disability (Farish, 1993; Urdang, 1983).

Other disorders may appear to affect one sex more than the other, but on closer examination, things are not so clear. For example, 4-9 times as many boys as girls have been identified as having Attention Deficit Disorder (ADD); however, many experts believe that girls with ADD are often not diagnosed, perhaps because they lack the hyperactivity component often associated with the disorder (Children and Adults With Attention-Deficit/Hyperactivity Disorder [CHADD], 1999). Similarly, U.S. public schools identify boys as having reading disorders four times more often than girls (National Institutes of Health, 2000). As new knowledge emerges, diagnoses in these areas will doubtless change. For example, autism is considered to be 4 times more common in boys than in girls (Autism Society of America, 2000). Less than 20 years ago, however, autistic children were routinely labelled mentally retarded or developmentally delayed (Sack, 1999).

On the other hand, while eating disorders are commonly considered to be the province primarily of females, stereotypes and diagnostic criteria may deter diagnosis in males (Andersen, 1999). There is also growing evidence of a male body-image counterpart to anorexia and bulimia known as muscle dysmorphia (Hall, 1999). The bottom line is that sex differences in the prevalence of certain conditions may result from differing behaviours, which may themselves be the product of subtle social or biological factors, or both.

Gender bias

Even after many years of concerted effort to change things, many observers believe that there is still systemic bias against women and girls in society in general, which affects our perceptions of educational achievements. For example, a recent TES article claimed that:

> (B)oys' underachievements and girls' achievements have generally been explained away, rather than explained.

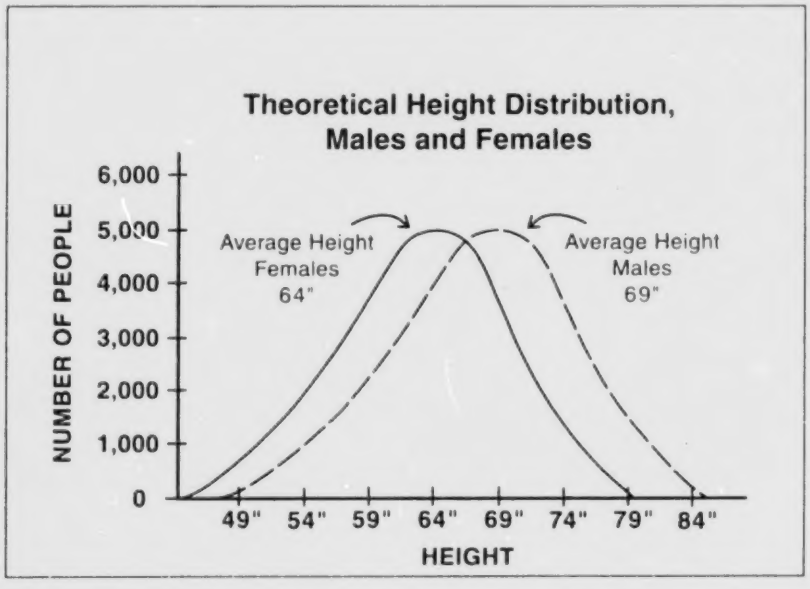
Boys' failures have been seen as everyone's fault except the boys' themselves—blame has been attributed to teachers, to the wrong pedagogy, the wrong texts or whatever. But boys' successes have been seen as resulting from innate brilliance, intellect or natural potential.

For girls, by contrast, educational success has traditionally been put down to teaching methods or explained away as merely because of their neatness and hard work. Where they have done badly, it has been blamed on lack of ability. In other words, girls' failures have been seen as inherent to their sex, while boys' achievements have been all their own. ("Rogue males?", 1999)

Statistical limitations

Averages are a short-cut way of describing a population: they leave out much more information than they include. For instance, the average man is taller than the average woman, but we all know women who are taller than men of even above-average height (see ***Figure 1***). In other words, for any given measure, there is likely to be a great deal of variability within each of two compared populations (male and female in this example), so simple averages may conceal more than they reveal.

Figure 1



Misusing averages is not the only way to miss the point about what is happening in schools. Overlooking some of the appropriate data and asking the wrong questions are two other time-honoured ways. For example, what effects do factors such as family income, lone-parent status, and ethnicity have on boys' and girls' performance in school? Is there an interaction between one or more of these factors

and gender? A writer in *The Times Educational Supplement* remarked: "we find that the impact of class and ethnicity on achievement is greater than that of gender" ("Rogue males?", 1999).

These questions can be very difficult to address since data are often lacking, but could provide key information to help us understand and address the issues.

Enrolment

More than half of the students in B.C. public schools are male (***Table 1***), a reflection of the gender distribution of the younger age groups in the provincial population. While males make up 51.5% of students in standard schools, females predominate in Continuing Education and Distance Education. There are also slightly fewer males in Alternate Schools than one would expect, but more in Electronic Delivery programs. **Boys are, however, greatly over-represented in Provincial Resource Programs (63%) and Containment Centres (87%).**

Table 1

Enrolment by gender and facility type, 1999-2000

	Gender			
	Female	**Male**	**Total**	**% Male**
Standard	290,912	309,037	599,949	51.5%
Continuing Education	9,256	7,653	16,909	45.3%
Alternate School	5,603	5,693	11,296	50.4%
Distance Education	4,271	3,412	7,683	44.4%
Electronic Delivery	1,071	1,205	2,276	52.9%
Band School	858	898	1,756	51.1%
Provincial Resource Program	127	214	341	62.8%
Containment Centre	34	220	254	86.6%
Total	**312,132**	**328,332**	**640,464**	**51.3%**

SOURCE: Unpublished data, *Student Level Data Collection*, B.C. Ministry of Education (MoE), Fall 1999(h).

Educators

Of elementary and secondary public school educators in B.C., 34% are male: 32% of teachers and 64% of administrative officers (Ministry of Education [MoE], 1999e). Of 60 superintendents, 9 were women (15%) (Ministry of Women's Equality, 2000).

Among **full-time** post-secondary educators in the province, nearly two-thirds are men (65%): 58% of community college instructors (excluding trades instructors) and 75% of university professors (Statistics Canada, 1999a, pp. 168-169). Given the trend towards using **part-time** teaching staff, it is unfortunate that no data are readily available on their numbers.

We can expect to see more women on post-secondary faculties as their share of higher degrees increases. Indeed, since 1992–1993, the number of **full-time** female faculty in Canada has grown by nearly 11% while the number of male faculty has declined by 15% (Statistics Canada, 2000f).

Secondary school completion

There are several ways to measure and report on school completion rates. In all of the following examples, however, females have higher completion rates than males.

Ministry 6-year completion rates

The B.C. Ministry of Education has developed a secondary school completion model that reflects the progress of Grade 8 students toward completing a Dogwood certificate within 6 years. ***Figure 2*** demonstrates that, as of 1998–1999, about 80% of females and 70% of males in British Columbia completed secondary school within 6 years of Grade 8. In other words, females have a 10 percentage point advantage in the late teenage years.

Approximately 43% of Aboriginal females and 35% of Aboriginal males complete secondary school within 6 years of Grade 8 (***Figure 2***). While both male and female Aboriginal students have lower secondary school completion rates than non-Aboriginal students, there is a wider gap between Aboriginal males and females (12%) (MoE, 1999b).

Figure 2

SOURCES: *1998–1999 Annual report*, MoE, 1999a; unpublished data, *Student Level Data Collection*, MoE, Spring 2000(b).

Table 2 illustrates that the completion rates of both males and females are improving, for both Aboriginal and non-Aboriginal students.

Table 2

B.C. 6-year Dogwood completion rates (%), public schools

	1996–1997	1997–1998	1998–1999
Overall			
Male	66.3	66.5	69.4
Female	75.6	76.6	79.3
Total	70.8	71.4	74.3
Aboriginal			
Male	30.4	30.2	34.5
Female	39.3	42.4	42.5
Total	34.7	36.0	38.3
Non-Aboriginal			
Male	69.0	69.4	72.1
Female	78.3	79.2	82.0
Total	73.6	74.2	76.9

SOURCE: unpublished data, *Student Level Data Collection*, MoE, 1999(h).

Graduates as a percentage of September Grade 12 enrolment

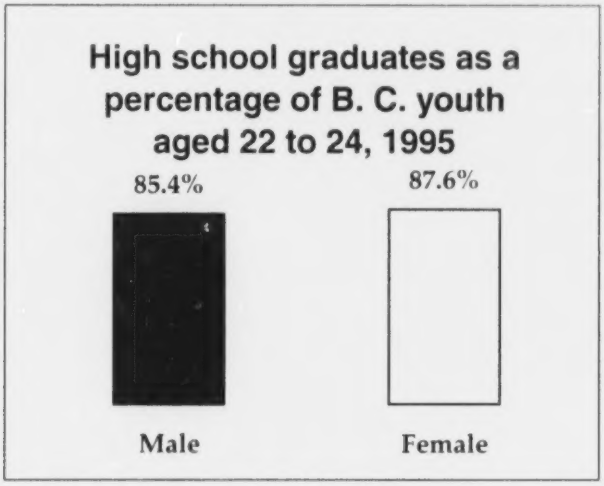
Of the 47,926 students who began Grade 12 in B.C. public schools in September 1998, 39,314 were potential graduates (i.e., were taking sufficient courses and would graduate if they passed those courses) (MoE, 1999f). Of the possible graduates, 91.5% (nearly 36,000) actually graduated within the year: 93.2% of females and 89.7% of males. Of these graduates, 55.7% of the females were honours graduates compared to 38.9% of the males (MoE, 1999g).

Young adults' completion rates

Data from the School Leavers Follow-up Survey, conducted in 1995 by Statistics Canada on behalf of Human Resources Development Canada (HRDC), illustrate that many of those who do not complete secondary school at the "usual" time will go on to complete it in later life, with males nearly catching up to females.

Results of this survey indicate that 86.4% of youth in British Columbia have completed a Dogwood or its equivalent by age 25. That breaks down to 87.6% of women and 85.4% of men (*Figure 3*).

Figure 3



SOURCE: *After high school: The first years; The first report of the School Leavers Follow-up Survey, 1995.* Human Resources Development Canada (HRDC) and Statistics Canada, 1996.

Unemployment among graduates and non-completers, Canada

For those who do not complete high school, the economic consequences are dire, particularly for women. Canada-wide, unemployment rates were lowest in 1995 for those youth who had taken further education or training after obtaining their secondary school credentials (11.3% for males, 10.4% for females). Those with no further education or training beyond secondary were unemployed at rates of 14.1% for men and 11.2% for women. In both of these groups, therefore, females experienced lower unemployment rates. Among those who had never completed high school, however, men experienced unemployment rates of 17.3%, while 30.2% of women who wanted to work could not find jobs (HRDC & Statistics Canada, 1996).

Course enrolment and achievement

Figures on secondary school course choices by males and females are no longer available from the ministry. ***Table 3*** summarizes males' course enrolments by broad subject area the last time such data were collected (September 1996).[3]

Table 3

Proportion of provincially prescribed secondary course enrolments held by males, 1996

SUBJECT AREA	%
INDUSTRIAL EDUCATION	80%
COMPUTER EDUCATION	68%
CONSUMER EDUCATION	55%
PHYSICAL EDUCATION	54%
AGRICULTURE	53%
MATHEMATICS	52%
LEARNING FOR LIVING	52%
ENGLISH	51%
SCIENCE	51%
SOCIAL STUDIES	51%
INT. DISP. STUDIES	50%
VISUAL ARTS	49%
DRAMA	47%
LANGUAGES	45%
BUSINESS EDUCATION	44%
MUSIC	40%
HOME ECONOMICS	34%
LANGUAGE ARTS	32%
DANCE	5%

SOURCE: BCTF calculations on *Standard Report 2069*, MoE, 1996.

In 1996, boys made up 54% of all secondary students, so males and females could be said to be equally represented in classes with about 50–58% males. Using this criterion, young men were over-represented in the traditionally **male bastions of Industrial Education and Computer Education**, the core courses were fairly evenly split, and **young women dominated in Dance, Language Arts, and Home Economics**—all traditionally seen as the province of women. Females also made up

[3] The Ministry of Education warns that many students enrol in more than one course in a subject area; summing course enrolments for a subject area would result in enrolment that is too high. ***Table 3*** therefore displays the proportion of course enrolments in each subject area held by boys.

a slightly higher percentage of enrolments than males in Music, Business Education, Languages, Drama, and Visual Arts. It is unfortunate that there are no more recent data that would allow us to determine whether this surprising gender divide still exists in B.C. schools. The closest we can get is participation in, and marks on, Grade 12 provincial exams, which have limited relevance to students who focus on vocational, practical, or fine arts.

Computing and technology

While data for B.C. or Canada are not readily available, it is safe to assume that the results of a recent study by the American Association of University Women (AAUW) Educational Foundation are relevant here. The study contends that females are "alarmingly underrepresented in computer science and technology," not because girls feel inadequate, but because (1) they are repelled by computer culture, which they see stereotypically as male and antisocial, (2) they find programming instruction dull and tedious, and (3) they perceive computer games to be violent, boring, and repetitive, as well as disconnected from the world they choose to engage in. The report also contends that gender equity cannot be measured simply by how many females use the Web, send e-mail, or use particular types of software; instead, a more complex concept of computer fluency should be used, incorporating the ability to make proactive use of technology, understanding design, and meaningfully interpreting information acquired through technology (AAUW, 2000).

Regarding computer instruction in schools, the AAUW found differences between male and female teachers' perceptions of boys' and girls' aptitude and performance:

- 71% of male teachers said boys were "more interested in the 'mechanics of computer technology' " than girls (1% said girls showed more interest);
- 36% of male teachers believed boys "enjoy applied uses and experiences with computers" more than do girls;
- two-thirds of female teachers believed female and male students were "about equal" when it came to "(using) technology more freely and frequently"[4];
- 70% of female teachers also found males and females to "enjoy abstract (computing) problems" equally;
- both male and female teachers perceive that girls are more concerned than boys about making mistakes on computers;
- female teachers tend to see their female students as competent with computer technology—perhaps even more competent than they are themselves; but

[4] This corroborates the finding of the NCES report, *Trends in educational equity of girls and women*, mentioned in the "United States" section of the Introduction to this paper: "Females are just as likely as males to use computers at home and at school" (Bae et al., 2000).

- male teachers tend to perceive female students as "passive and disinterested" in computer technology. ("AAUW: Too many girls", 2000)

According to AAUW, the proportion of teachers who are female—75% in the U.S. and about 66% in B.C.—is a factor that is often overlooked in discussions around educational technology. Women teachers' concerns mirror those of their female students: "This population isn't necessarily that comfortable using technology across the curriculum," said AAUW's director of research, Pamela Haag.

The report recommends that teacher education should "emphasize educational applications or innovative uses of computing for each subject area" rather than focus merely on the technical details of hardware. **Further, it recommends that technology uses and concepts should be infused in all curriculum, "from music to history to the sciences" to interest not only females, but also males who do not identify with the "computer nerd" image.**

Grade 12 courses

Table 4 displays male and female participation rates in the largest provincial examinations in the 1998–1999 school year.

Table 4

B.C. provincial exam participation rates by gender, 1998–1999

	Participation Rate (%)		
Subject	Female	Male	Relative Rate M:F
Physics	8.4	20.1	2.39
Communications	8.4	14.1	1.68
Mathematics	36.2	40.6	1.12
Geology	3.1	3.1	1.00
Chemistry	24.2	23.1	0.95
Geography	19.2	18.2	0.95
History	18.1	16.6	0.92
English	78.7	69.1	0.88
Mandarin Chinese	5.7	5.0	0.88
Japanese	2.1	1.5	0.71
Français langue seconde	3.4	1.8	0.53
Biology	38.0	19.7	0.52
French	14.6	6.2	0.42
English Lit ature	12.7	4.3	0.34

SOURCE: *Trends in the Grade 12 Provincial Examinations Program, 1998/99*, MoE, February 2000(a).

Males and females participated in the Geology exam to an equal extent (3% of all Grade 12 students) while males had a higher participation rate on Physics (2.4 times that of females), Communications (1.7 times the female rate), and Mathematics (1.1 times the female rate). Otherwise, female students had higher participation rates than males in provincially examinable subjects. For example, males were about one-third as likely as females to write the English Literature exam.

Average school marks by gender, 1998–1999

Young women also continued their historical trend of garnering higher school marks in all subjects than young men, as shown in ***Table 5***.

Table 5

School Marks (%)

Subject	Female	Male	Relative Rate M:F
Biology	74.5	72.2	0.97
Chemistry	76.3	74.3	0.97
Communications	66.7	61.8	0.93
English	72.9	67.1	0.92
English Literature	75.7	72.4	0.96
Français langue seconde	76.5	69.6	0.91
French	79.6	76.9	0.97
Geography	72.0	68.9	0.96
Geology	70.2	67.9	0.97
History	73.5	71.2	0.97
Japanese	83.1	80.3	0.97
Mandarin Chinese	83.3	79.1	0.95
Mathematics	73.3	70.8	0.97
Physics	78.6	74.7	0.95

SOURCE: *Trends in the Grade 12 Provincial Examinations Program, 1998/99*, MoE, February 2000(a).

Average provincial exam marks by gender, 1998–1999

Males earned higher marks than females on the Geology, Geography, History, and Chemistry provincial examinations in 1997–1998 and 1998–1999; however, females excelled in all other subjects (***Table 6***).

Table 6

Provincial Exam Marks (%)

Subject	Female	Male	Relative Rate M:F
Geology	60.4	64.2	1.06
Geography	67.8	70.6	1.04
History	67.2	69.0	1.03
Chemistry	67.5	68.4	1.01
Mathematics	66.8	66.9	1.00
Biology	65.3	65.3	1.00
French	75.8	74.7	0.99
English Literature	72.6	71.1	0.98
Physics	72.4	70.6	0.98
Communications	65.6	63.9	0.97
Mandarin Chinese	78.5	75.1	0.96
Japanese	79.2	75.2	0.95
Français langue seconde	73.0	68.2	0.93
English	67.7	63.1	0.93

SOURCE: *Trends in the Grade 12 Provincial Examinations Program, 1998/99*, MoE, February 2000(a).

Taken together, the discrepancies in males' and females' school and examination marks could be construed to mean either that—at least in some subjects—males are not graded fairly at school, or that females are not graded fairly on provincial examinations, but neither of these contentions can be proven with existing data.

Honours graduates

Students graduate with honours when they achieve a grade point average of greater than 3.0 on a scale where B equals 3 points. This section examines statistics on honours students in the B.C. public school system.

As ***Table 7*** indicates, the number of regular secondary graduates increased steadily between 1994–1995 and 1998–1999—males by 24% and females by 22%. During the same period, the number of honours graduates increased by 45% for males and 44% for females. The proportion of young women graduating with honours rose from 47% to 56%; corresponding figures for young men were 33% and 39%. In other words, in 1998–1999, more than half of new female graduates (56%) and 39% of male graduates earned honours. In 1998–1999, females were 52% of all graduates but

earned 60% of honours, while males were 48% of all graduates and 40% of all honours graduates.

Table 7

Regular program graduates by gender, B.C. public schools, 1995 to 1999

	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	4-year increase
Total Regular Graduates--Female	15,180	16,036	16,775	18,063	18,535	22%
Total Regular Graduates--Male	14,068	14,935	15,343	16,554	17,431	24%
TOTAL REGULAR GRADUATES	29,248	30,971	32,118	34,617	35,966	23%
Females as % of Regular Graduates	52%	52%	52%	52%	52%	
Males as % of Total Graduates	48%	48%	48%	48%	48%	
Regular Honours Graduates--Female	7,152	7,909	9,347	10,147	10,326	44%
Regular Honours Graduates--Male	4,691	5,215	6,015	6,400	6,785	45%
TOTAL HONOURS GRADUATES	11,843	13,124	15,362	16,547	17,111	44%
Female Honours Graduates as % of Total Female	47%	49%	56%	56%	56%	
Male Honours Graduates as % of Total Male	33%	35%	39%	39%	39%	
Female Honours Graduates as % of Total Graduates	24%	26%	29%	29%	29%	
Male Honours Graduates as % of Total Graduates	16%	17%	19%	18%	19%	
Females as % of Total Honours Graduates	60%	60%	61%	61%	60%	
Males as % of Total Honours Graduates	40%	40%	39%	39%	40%	

SOURCE: *Trends in the Grade 12 Provincial Examinations Program, 1998/99*, MoE, February 2000(a).

Scholarships

B.C. Grade 12 graduates are granted a provincial scholarship if they: pass English 12, Technical and Professional Communications 12, Français langue seconde 12 or Français langue première 12; are a Canadian citizen or permanent resident; fulfill graduation requirements; are enrolled in a B.C. public or correspondence school, a Group 1, 2, or 4 independent school, or are home-schooled; write at least 3 provincial examinations; and achieve a total score of at least 1700 on their best three exams, and no less than 475 on any one of those three exams. Again, this is an area in which females surpass males. The figures presented here include graduates of public and private schools.

Table 8 shows that the number of female scholarship winners increased more quickly than that of male scholarship winners between 1994–1995 and 1998–1999: by 36% compared to 28%. (Total public and private enrolment increased by 23% during this period.) The proportion of male graduates receiving a provincial scholarship fluctuated between 8.9% and 9.6% during this period, but averaged 9.2%; in contrast, 9.8% to 10.8% of female graduates earned provincial scholarships, on average 10.5% over the 4-year period.

Table 8

Provincial scholarship winners by gender, all B.C. schools, 1995 to 1999

	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	4-year increase
Female Winners	1,605	1,800	1,933	2,107	2,175	36%
Male Winners	1,359	1,505	1,598	1,661	1,740	28%
Total Number of Winners	2,964	3,305	3,531	3,768	3,915	32%
% of Grade 12 Graduates	9.4%	9.9%	10.2%	10.1%	10.0%	
% of Grade 12 Graduates--Female	9.8%	10.4%	10.7%	10.8%	10.8%	
% of Grade 12 Graduates--Male	8.9%	9.2%	9.6%	9.2%	9.2%	

SOURCE: *Trends in the Grade 12 Provincial Examinations Program, 1998/99*, MoE, February 2000(a).

The Ministry of Education also awards **gold medals of excellence** to Grade 12 graduates who received a perfect score on each of their 3 best scholarship subjects. In 2000, there were 6 such students, of whom **4 (67%) were male** (MoE, 2000c; personal communication, J. Gripich, MoE, Communications, Strategic Planning Unit, September 6, 2000).

Districts also award a certain number of scholarships, based on Grade 12 enrolment. Criteria vary from district to district but usually involve non-academic activities, such as community involvement. Students cannot earn both provincial and district scholarships. Here again, females earn more scholarships than males. The percentage difference is slight, however; on average, 1.4% of females and 1.3% of male graduates earn district scholarships (***Table 9***). On the other hand, while total enrolment increased by 23% over the period, the number of female winners increased by 21% while the number of male winners increased by only 8%.

Table 9

District scholarship winners by gender, all B.C. schools, 1995 to 1999

	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	4-year increase
Female Winners	233	249	267	274	283	21%
Male Winners	207	207	207	230	223	8%
Total Number of Winners	440	456	474	504	506	15%
% of Grade 12 Graduates	1.4%	1.4%	1.4%	1.3%	1.3%	
% of Grade 12 Graduates--Female	1.4%	1.4%	1.5%	1.4%	1.4%	
% of Grade 12 Graduates--Male	1.4%	1.3%	1.2%	1.3%	1.2%	

SOURCE: *Trends in the Grade 12 Provincial Examinations Program, 1998/99*, MoE, February 2000(a).

As noted above, students win a provincial scholarship if they achieve a total score of at least 1700 on their best three provincial exams, and no less than 475 on any one of those three exams. ***Table 10*** displays the courses most frequently used by females

and males to qualify for scholarships, sorted by frequency of use by males. In 1998–1999, the top qualifying course was Mathematics for males (20% used it) and English for females (24%). Males also commonly used Chemistry, English and Physics while females commonly used Biology, Mathematics, and Chemistry. These patterns are the same as in previous years; however, the percentage of females winning with English has increased 4.2% since 1994–1995 while that for males is the same as in 1994–1995. Since that year, as well, other percentages have changed as both males and females are using other subjects more frequently.

Table 10

Courses used to win provincial scholarships by gender, 1999

Subject	Female winners	Female rank	Male winners	Male rank	Female winners as % of all female winners	Male winners as % of all male winners
Mathematics	806	3	1042	1	12.4%	20.0%
Chemistry	661	4	906	2	10.1%	17.4%
English	1558	1	811	3	23.9%	15.5%
Physics	279	9	779	4	4.3%	14.9%
Biology	983	2	459	5	15.1%	8.8%
History	523	5	397	6	8.0%	7.6%
Geography	383	8	337	7	5.9%	6.5%
French	477	7	164	8	7.3%	3.1%
English literature	493	6	143	9	7.6%	2.7%
Mandarin Chinese	130	10	87	10	2.0%	1.7%
Geology	48	13	37	11	0.7%	0.7%
Français langue seconde	83	11	23	12	1.3%	0.4%
Other	64	12	18	13	1.0%	0.3%
Japanese	34	14	17	14	0.5%	0.3%

Note: "Winners" use the score from the specified course as one of the three scores required to win a provincial scholarship.

SOURCE: *Trends in the Grade 12 Provincial Examinations Program, 1998/99*, MoE, February 2000(a).

Adult secondary school completion

As indicated in the "Young adults' completion rates" section earlier in this report, males virtually catch up to females, in terms of high school completion, by age 24. Nonetheless, females continue to outnumber males as adult students in public secondary schools (***Table 11***). Possible explanations include large numbers of immigrant women upgrading their education and the use of college Adult Basic Education (ABE) programs instead of secondary schools; however, the Ministry of Advanced Education, Training and Technology reports that 53% of full-time and 58% of part-time ABE Developmental students at B.C. community colleges and institutes were female (Ministry of Advanced Education, Training & Technology, n.d.).

Table 11 indicates that the number of male adult graduates from public schools nearly doubled between 1994–1995 and 1998–1999, while the number of female adult graduates increased by just over 50%. By 1998–1999, men were 43% of graduates, up from 38% in 1994–1995. Women were 72% of Honours graduates in 1998–1999, while men increased their share by 6 percentage points from 1994–1995, a fact that is reflected in the 133% increase in the number of male adult Honours graduates.

Table 11

Adult program graduates by gender, B.C. public schools, 1995-1999

	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	4-year increase
Total Adult Graduates--Female	280	352	378	405	432	54%
Total Adult Graduates--Male	170	195	243	293	323	90%
TOTAL ADULT GRADUATES	450	547	621	698	755	68%
Females as % of Adult Graduates	62%	64%	61%	58%	57%	
Males as % of Adult Graduates	38%	36%	39%	42%	43%	
Adult Honours Graduates--Female	120	142	142	178	197	64%
Adult Honours Graduates--Male	33	35	44	53	77	133%
TOTAL ADULT HONOURS GRADUATES	153	177	186	231	274	79%
Female Honours Graduates as % of Total Female	43%	40%	38%	44%	46%	
Male Honours Graduates as % of Total Male	19%	18%	18%	18%	24%	
Female Honours Graduates as % of Total Graduates	27%	26%	23%	26%	26%	
Male Honours Graduates as % of Total Graduates	7%	6%	7%	8%	10%	
Females as % of Total Honours Graduates	78%	80%	76%	77%	72%	
Males as % of Total Honours Graduates	22%	20%	24%	23%	28%	

SOURCE: *Trends in the Grade 12 Provincial Examinations Program, 1998/99*, MoE, February 2000(a).

Teachers' perceptions of achievement

In the first cycle of the National Longitudinal Study of Children and Youth (NLSCY) (1994–1995), teachers were asked to assess their students' academic performance in reading, writing and mathematics, relative to other students in the class. In **reading**, teachers considered 32% of girls and 22% of boys to be "near the top of their class"; in **writing**, 28% of girls and 16% of boys; and in **mathematics**, 27% of girls and 28% of boys. Teachers also ranked students on **overall ability**, placing 28% of girls and 18% of boys near the top of their class (Julien & Ertl, 1999).

Foundation Skills Assessment

Standardized pencil-and-paper tests are frequently mentioned in comparisons of boys' and girls' academic achievements. These types of examinations have many drawbacks: They provide only a limited view of children's academic accomplishments, and none of other goals of the education system such as citizenship and social responsibility (BCTF, 2000a). Results can be influenced by factors such as the child's recent nutritional intake, amount of sleep and mood. Tests can be biased against cultural or other groups (e.g., boys or girls): In particular, some experts hold that "boys do well at clear-cut questions which do not require them to

explain themselves" (Cassidy, 2000). Large-scale assessments are often inaccurate for assessing individual students' learning, but may—if valid instruments are used and are administered repeatedly over time—provide useful information about how well the system is operating and identify trends for the development of curriculum.

In British Columbia, the Foundation Skills Assessment (FSA) covering three areas—reading comprehension, writing and numeracy—is administered annually to students in Grades 4, 7 and 10 (MoE, n.d.). In 1999, a higher proportion of girls than of boys met or exceeded expectations in reading and writing. Results in numeracy were similar (***Table 12***).

Table 12

Proportions of students meeting or exceeding expectations, provincial FSA,1999

	Reading Percentages		Writing Percentages		Numeracy Percentages	
Grade	Girls	Boys	Girls	Boys	Girls	Boys
4	84	79	91	82	86	87
7	87	81	N/A	N/A	72	73
10	88	79	N/A	N/A	76	76

SOURCE: *1998-1999 Annual Report*, MoE, 1999(a).

Mathematics and science achievement

The Third International Mathematics and Science Study (TIMSS) (National Center for Education Statistics [NCES], 1995) raises many of the same questions as the FSA. Given these caveats, the TIMSS data allow us to compare the scores of British Columbia males and females on standardized mathematics and science tests at several grade levels. Provincial samples of Grade 4, 8 and 12 students were large enough to allow meaningful statements about performance of the two sub-groups (see ***Tables 13***, ***14***, and ***15***). Future administrations of the international math and science assessment will provide better data on trends; for example, whether the cohort that was in Grade 4 in 1995 continues to show the same patterns.

Table 13

British Columbia TIMSS scores, 1995—Grade 4

Summary statistic	Gender difference
MATHEMATICS	6.0
Whole numbers	7.8
Fractions and proportionality	2.6
Measurement, estimation and number sense	8.9
Data representation, analysis and probability	2.2
Geometry	3.4
Patterns, relations and functions	14.1
SCIENCE	1.8
Earth science	1.6
Life science	0.9
Physical science	5.3
Environmental issues and the nature of science	-5.4

Note: ***Gender difference*** = boys' mean score – girls' mean score. No indicators of statistical significance provided in study report.

SOURCE: *The TIMSS-Canada Report; Volume 2: Grade 4*. Robitaille, Taylor, & Orpwood, 1997.

Of the children tested, those in Grade 4 (most born in 1986) were the youngest and therefore the most likely to have been exposed to "post-feminist" equality of treatment of boys and girls in the family, child care centres, preschools, and schools. At 9 years of age, they are also likely to be more or less immune to the social and individual changes wrought by puberty. The TIMSS results, however, indicate that boys perform better than girls at mathematics and science, even at this tender age (unfortunately, the study does not provide indications of these differences' statistical significance for Grades 4 and 8). The only exceptions are environmental issues and life science—both biological fields in which women have traditionally participated almost as much as, or more than, men.

Table 14

British Columbia TIMSS scores, 1995—Grade 8

Summary statistic	Gender difference
MATHEMATICS	-0.5
Fractions and number sense	-3.7
Geometry	-2.2
Algebra	2.9
Data representation, analysis and probability	-2.4
Measurement	5.6
Proportionality	0.6
SCIENCE	2.5
Earth science	-0.2
Life science	0.8
Physics	3.8
Chemistry	4.9
Environment and other science content	5.1

Note: ***Gender difference*** = boys' mean score – girls' mean score. No indicators of statistical significance provided in study report.

SOURCE: *The TIMSS-Canada Report; Volume 1: Grade 8.* Robitaille, Taylor, & Orpwood, 1996.

The Grade 8 students, at age 13, are just on the cusp of puberty—a time at which girls' math and science achievement has typically been observed to decline. The TIMSS results, however, indicate that B.C. girls of this age surpass their male classmates in a number of mathematics areas, including fractions, geometry, and data representation. In the sciences, however, boys' performance is better on average, with the exception of earth science (probably not statistically significant).

Table 15

British Columbia TIMSS scores, 1995—Grade 12

Summary statistic	Gender difference	Stat. sig.
MATHEMATICS AND SCIENCE LITERACY	1.9	✓
Mathematics literacy	1.6	✓
Science literacy	2.1	✓
REASONING AND SOCIAL UTILITY	2.4	✓
ADVANCED MATHEMATICS—OVERALL	2.8	✓
Advanced mathematics—numbers and equations	1.9	
Advanced mathematics—calculus	2.5	✓
Advanced mathematics—geometry	2.4	✓
OVERALL PHYSICS	4.6	✓
Physics—mechanics	5.1	✓
Physics—electricity and magnetism	4.1	✓
Physics—heat	2.8	✓
Physics—wave phenomena	3.8	✓
Physics—modern physics	3.5	✓

Note: ***Gender difference*** = boys' mean score – girls' mean score; ***Stat. sig.*** ✓ means gender difference is statistically significant at the 95% confidence level.

SOURCE: *The TIMSS-Canada Report; Volume 4: Senior Secondary,* Robitaille, Taylor, Orpwood, & Donn, 1998.

B.C. students who were in Grade 12 in 1995 (most born in 1978) displayed the now almost clichéd male-female performance disparities. Except for Advanced Mathematics—numbers and equations, boys' performance on TIMSS surpassed girls' in every math and science category and the differences were statistically significant.

Special needs and gender

As indicated earlier in this report, certain conditions, such as autism and Fragile X syndrome—a common cause of intellectual disability—are more common in males, while ADD may be under-diagnosed in females. Even if all children had a correct medical diagnosis, the special needs categories utilized in British Columbia do not correspond to medical conditions such as ADD/ADHD or Fetal Alcohol Syndrome/Fetal Alcohol Effect (FAS/FAE): "Medical diagnosis by itself does not determine the special education services required.... Students with medically diagnosed conditions should be identified for funding purposes in the educational category that best reflects the type and intensity of educational interventions documented in the IEP" (MoE, 1995, 95-E-1). If the regular classroom teacher, learning assistance, counselling, speech-language pathology, or other separately funded services are "meeting the student's needs," then he or she should not be included in a designated funding category (MoE, 1995, 95-E-2).

During a recent review of B.C.'s special education policy and programs, one teacher noted: "Some children with FAS may not meet any existing criteria, yet they require a significant support structure in order to access education" (BCTF, 1999). Furthermore, funding of students with moderate disabilities (high incidence/low cost) is capped at a maximum 4% of a district's student population. **For these reasons, there are serious implications for services to females with ADD/ADHD, FAS/FAE or similar disorders, who may be overlooked if they do not engage in attention-getting behaviours such as acting out and aggression.**[5]

The following data on special needs designations and gender in B.C. (***Table 16***) should therefore be considered with the following caveats in mind:

- diagnostic criteria are not always straightforward, therefore the data reflect *identification*, not necessarily prevalence;
- students can be assigned to only one special needs program;
- as funding for the high incidence/low cost categories is capped at 4% of a district's enrolment, districts may have to make decisions about which eligible students receive services;
- grey-area students are not identified;

[5] A recent Statistics Canada analysis of data from the National Longitudinal Survey of Children and Youth (NLSCY) determined that boys aged 8 to 11 were twice as likely to have conduct disorder as girls of the same age (26% vs. 13%). Conduct disorder in this study was "characterized by either physical or indirect aggression against persons or property, or a severe violation of societal norms"; children were identified as having conduct disorder if they scored in the highest 10% on a scale developed for the NLSCY. Parenting style was found to be the single most important factor associated with conduct disorder (Stevenson, 1999).

- identification practices vary from district to district; some practitioners are more adept than others at selecting funding categories for children with medical conditions that are not explicitly referred to in the guidelines;
- the special needs of some girls may not be identified or met because their behaviour is not troublesome;
- percentages (proportions) provide more accurate information than raw numbers as there are differing numbers of male and female students;
- totals may not add because of rounding;
- totals may differ slightly from numbers published elsewhere because of definitions and time-frames; and
- the figures are for public schools only.

Table 16

Students with Special Needs, by Category, B.C., Fall 1999

Special Education Category	No. of Females	Percent of Females	No. of Males	Percent of Males	Total	Percent of Total	Ratio M:F
PHYSICALLY DEPENDENT	373	0.12%	384	0.12%	757	0.12%	0.98
DEAF/BLIND	17	0.01%	21	0.01%	38	0.01%	1.17
MOD SEVERE/PROFOUND MENTAL DISABILITY	1,028	0.33%	1,331	0.41%	2,359	0.37%	1.23
PHYSICAL DISABILITY	1,198	0.39%	2,085	0.64%	3,283	0.52%	1.65
VISUALLY IMPAIRED	171	0.06%	263	0.08%	434	0.07%	1.46
DEAF/HARD OF HEARING	655	0.21%	889	0.27%	1,544	0.24%	1.29
AUTISTIC	187	0.06%	903	0.28%	1,090	0.17%	4.58
SEVERE BEHAVIOUR	1,654	0.54%	4,727	1.46%	6,381	1.01%	2.71
SEVERE LEARNING DISABLED	4,259	1.39%	10,816	3.34%	15,075	2.39%	2.41
MILD INTELLECTUAL DISABILITY	1,639	0.53%	2,416	0.75%	4,055	0.64%	1.40
MODERATE BEHAVIOUR DISORDER	1,702	0.55%	5,716	1.76%	7,418	1.18%	3.18
BEHAVIOUR DISORDER – REHAB	2,445	0.80%	3,347	1.03%	5,792	0.92%	1.30
GIFTED	9,585	3.12%	8,788	2.71%	18,373	2.91%	0.87
NON-SPECIAL NEEDS	282,090	91.89%	282,336	87.13%	564,426	89.45%	0.95
TOTAL	307,003	100.00%	324,022	100.00%	631,025	100.00%	1.00
Subtotals							
Non-special needs plus gifted	291,675	95.01%	291,124	89.85%	582,799	92.4%	0.95
Special needs:	*15,328*	*4.99%*	*32,898*	*10.15%*	*48,226*	*7.6%*	*2.03*
Dependent Handicapped	390	0.13%	405	0.12%	795	0.13%	0.98
Low Incidence-High Cost	3,239	1.06%	5,471	1.69%	8,710	1.38%	1.60
Severe Behaviour	1,654	0.54%	4,727	1.46%	6,381	1.01%	2.71
High Incidence-Low Cost	10,045	3.27%	22,295	6.88%	32,340	5.12%	2.10

Source: BCTF calculations on unpublished data, *School Level Data Collection*, MoE, Fall 1999(h).

Analysis of special needs and gender

- There are more boys than girls in B.C.'s public schools: Boys make up more than 51% of enrolment.
- The vast majority of students in British Columbia schools do not receive either special education or gifted education services: 92% of females and 87% of males are in neither category.
- A further **3.1% of females and 2.7% of males are identified as gifted**—a marginally higher proportion of females than males (four-tenths of one percentage point).
- More than **10% of males are identified as having special needs** (overall, not including gifted) compared to **5% of females**. In other words, boys are identified twice as often as girls.
- ***Dependent Handicapped:*** In the physically dependent and deaf/blind categories, there is virtually no difference between prevalence in males and females. Only tiny fraction of each sex is affected (0.13% of females and 0.12% of males). The Male to Female Ratio in the last column (0.98) indicates that **girls have a *slightly* higher rate than males**.
- ***Low Incidence-High Cost:*** Males are identified more often than females in each of the five Low Incidence-High Cost categories (male-female ratios in parentheses, overall ratio of 1.60)—moderate to severe/profound mental disability (1.23), physical disability or chronic health impairment (1.65), visual impairment (1.46), deaf or hard of hearing (1.29), and autism (4.58). Put another way, boys are about half again as likely as girls to experience visual impairment, for example. The most significant difference between the two groups is in autism: **males in B.C. are 4.6 times as likely as females to be diagnosed as autistic**. This is in line with, but slightly higher than, the Autism Society of America's estimate that autism is 4 times more common in boys than girls (ASA, 2000).
- ***Severe Behaviour:*** **Males are almost 3 times as likely as females to be placed in the severe behaviour category (2.71)**. Of males in the school system, 1.5% are designated severe behaviour. It is likely that many males with FAS or ADD/ADHD are placed in this category, moderate behaviour disorder, or severe learning disability (see next point). **As noted earlier in this paper, 4-9 times as many boys as girls are diagnosed with ADD, but girls may be under-diagnosed if they do not display hyperactivity** (CHADD, 1999). Females' symptoms may be less disruptive, such as daydreaming and inability to concentrate: Dr. Gabor Maté describes a woman in her 30s with previously undiagnosed ADD as a distracted daydreamer, whose brain "unconsciously assigned greater value to a self-created internal universe than to anything or anyone in the classroom" (Maté, 1999, p. 126).

- ***High Incidence-Low Cost:*** Males dominate overall (**2 times the proportion of males as females are identified**) and in each of the four High Incidence-Low Cost categories of severe learning disability (2.41), mild intellectual disability (1.40), moderate behaviour disorder (3.18), and behaviour disorder—rehabilitation (1.30). **Moderate behaviour disorder is second only to autism in the relative rate at which it affects males.**

Post-secondary indicators

The post-secondary education system comprises trade and vocational programs, college-level career and university transfer programs, and university studies at the undergraduate, graduate and post-graduate levels.

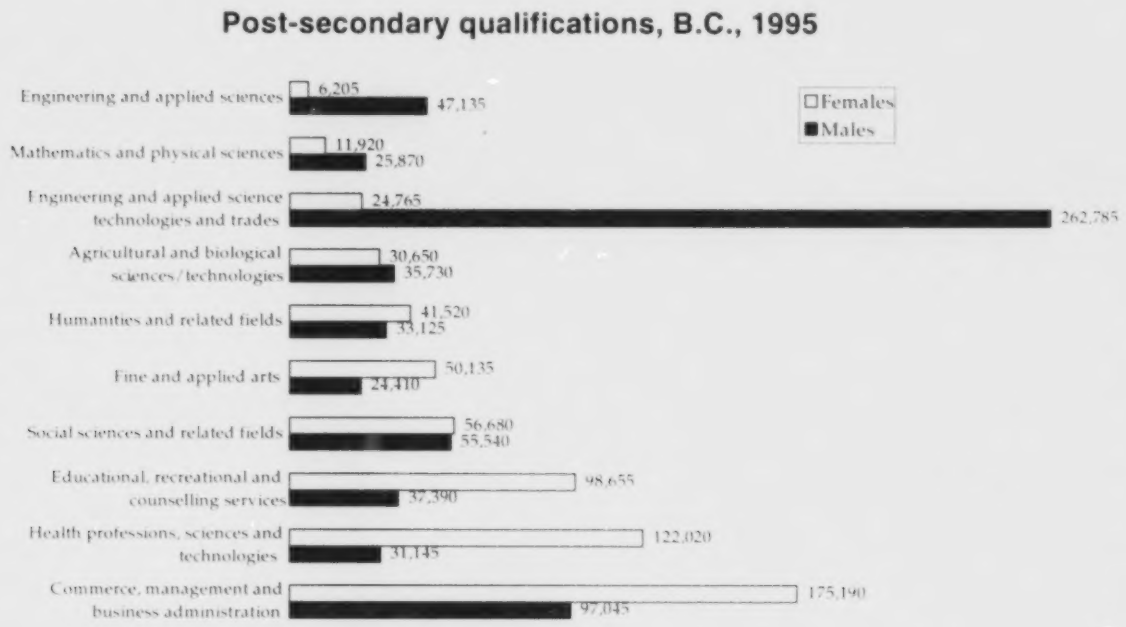
Post-secondary qualifications

According to the 1996 Census, about 1.27 million British Columbians 15 years of age and over held post-secondary qualifications (a degree, certificate or diploma) in 1995. Of these, 51% were male (651,000) and 49% were female (618,600). Looked at another way, 45% of men 15 and over and 41% of women 15 and over held post-secondary qualifications of some sort.

Figure 4 displays the estimated numbers of men and women with specific post-secondary qualifications. Only the social science fields are roughly in gender balance (49.5% are male, 50.5% are female), followed by agricultural and biological sciences. All other fields show significant gender bias, with the majority of women in commerce, management and business administration (28% of women with credentials) and most men in engineering and applied science technologies and trades (40%).

It is no surprise to see the predominance of women in health, education, fine arts, and humanities, or the preponderance of men in engineering and math and physical sciences. These figures, however, reflect past educational decisions. Current post-secondary enrolments cast light on what will happen in the future and whether gender roles are changing.

Figure 4



SOURCE: BCTF calculations on 1996 Census data.

Post-secondary attendance

The Ministry of Education reports that, in Fall 1998, 34.5% of male graduates from B.C. public and independent schools were eligible for university admission, compared to 42.8% of females; 14.5% of male graduates actually registered at a B.C. university, compared to 17% of female graduates (MoE, 1999a). These numbers must be interpreted with caution as they refer only to **direction transition** to university in the autumn immediately following secondary school graduation, do not include out-of-province universities, and do not include other post-secondary institutions in the province, e.g., colleges and institutes.

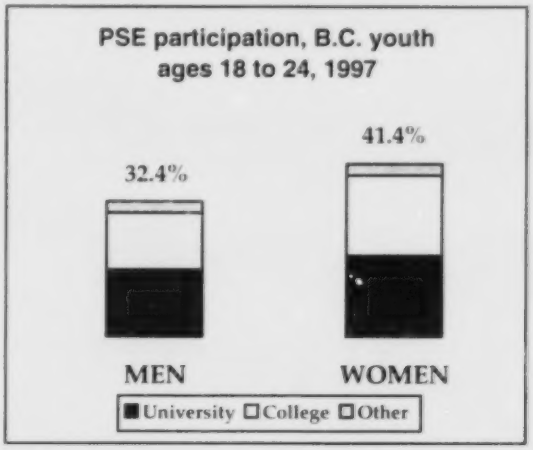
A 1995 follow-up study of high school graduates in their early 20s indicated that 83% of women took further education, compared to 77% of men. Among young women who had completed secondary school, 45% attended university compared to 39% of males (data are for Canada) (HRDC & Statistics Canada, 1996).

Data from Statistics Canada's Labour Force Survey allow comparisons of male and female participation rates in post-secondary education (PSE) over time in British Columbia as well as between provinces. Zeroing in on the group aged 18 to 24, rates for both men and women have generally trended upward since the late 1970s. From 1979 to 1981 and in several other years since then, women's PSE participation rates actually exceeded those of men; however, generally speaking, the 2 groups' rates were quite similar from about 1982 to 1992. Since 1993, B.C. women's PSE participation rates have been higher than men's.

In 1997, 41.4% of B.C. women aged 18 to 24 were participating in PSE compared to 32.4% of men (***Figure 5***). Women participated about evenly in university and college (19.4% and 19.2%, respectively), while men participated more in university (16%) than in college (13.7%). The PSE participation rate of B.C. women aged 18 to 24 is surpassed only by Quebec's (50.7%), while B.C. men's rate lagged behind Quebec (40%), Ontario (34.1%) and the Atlantic region (32.5%).

Men aged 25-29 are slightly more likely than women to be in school full-time (BC Stats, 2000b).

Figure 5



SOURCE: *An inter-provincial comparison of post-secondary education participation rates in Canada,* Centre for Education Information Standards and Services (CEISS), 1998.

Post-secondary enrolment

Post-secondary education in British Columbia is offered at public and private universities, colleges, and institutes. Colleges offer both trade and vocational programs as well as university transfer and career programs. **Gender specialization is in evidence at all levels, but is more pronounced in trade and vocational programs as well as community colleges.**

Vocational and trade enrolments, at just over 51,000, make up 38% of total *full-time* trade & vocational, university, and college enrolment; colleges make up 24%, split roughly equally between career and university transfer programs; and full-time undergraduate and graduate university students make up about 38% of total full-time post-secondary enrolment.

Table 17 displays *full-time* vocational and trade enrolments in B.C.'s colleges and institutes for the year 1995–1996. Men's predominance in registered apprenticeship programs (96%) is striking. Men also dominate in special training and other programs, orientation programs, and skill upgrading programs. Overall, men represent 58% of enrolments (of totals where sex is reported) in trade and vocational programs.

Table 18 presents enrolment figures for college and institute university transfer or career programs, as well as university undergraduate and graduate programs. Both full-time and part-time enrolment are provided. Women dominate in all categories except full-time university graduate studies, where men have a slight edge (54%).

Table 17

Full-time enrolments in trade and vocational programs, B.C., 1995-1996

Program	Male	Female	Not reported	% Male (of reported)
Pre-employment or pre-apprenticeship vocational program	8,440	7,810	3,707	52%
Programs for registered apprentices	8,251	345	1,067	96%
Pre-vocational academic upgrading or basic training for skill development programs	4,121	4,657	1,502	47%
Language training programs	2,955	4,663	530	39%
Skill upgrading programs	514	174	114	75%
Job readiness training programs	54	116	16	32%
Orientation programs	1,171	556	379	68%
Special training and other programs	51	18		74%
TOTAL	**25,557**	**18,339**	**7,315**	**58%**

SOURCE: Table 10, *Education in Canada, 1998*, Statistics Canada, 1999(a).

Table 18

Full- and part-time post-secondary enrolment by level and sex, B.C., 1996-1997

Type	Male	Female	Total	% Male
Full-time community college (university transfer or career)	15,190	17,089	32,279	47%
Part-time community college (university transfer or career)	17,012	27,790	44,802	38%
Total community college (university transfer or career)	32,202	44,879	77,081	42%
Full-time university undergraduate	18,971	22,642	41,613	46%
Full-time university graduate	5,336	4,617	9,953	54%
Full-time university total	24,307	27,259	51,566	47%
Part-time university undergraduate	8,549	12,470	21,019	41%
Part-time university graduate	746	1,248	1,994	37%
Part-time university total	9,295	13,718	23,013	40%
TOTAL	**65,804**	**85,856**	**151,660**	**43%**

SOURCE: Table 12, *Education in Canada, 1998*, Statistics Canada, 1999(a).

Table 19 provides a detailed breakdown of university undergraduate enrolments by field of study in 1996–1997 while ***Figure 6*** displays enrolments in broad fields graphically. Overall, men made up 46% of full-time undergraduates and 41% of part-time. Women outnumbered men in most broad fields: **Agricultural and biological sciences**, **Education**, **Fine and applied arts**, **Health professions**, **Humanities**, **Social sciences**, and **General arts and sciences**. Men were more numerous than women in **Engineering and applied sciences** and **Mathematics and physical sciences**.

In **Education** faculties, men comprised 29% of full-time enrolment in **Education** (academic subjects) and half of **Physical education** enrolment (combined 36%). Fewer men studied Education part-time: 21% of academic and 46% of Physical education enrolments were male (combined 28%). On a total headcount basis, about one-third of all undergraduate education students were male.

Table 19

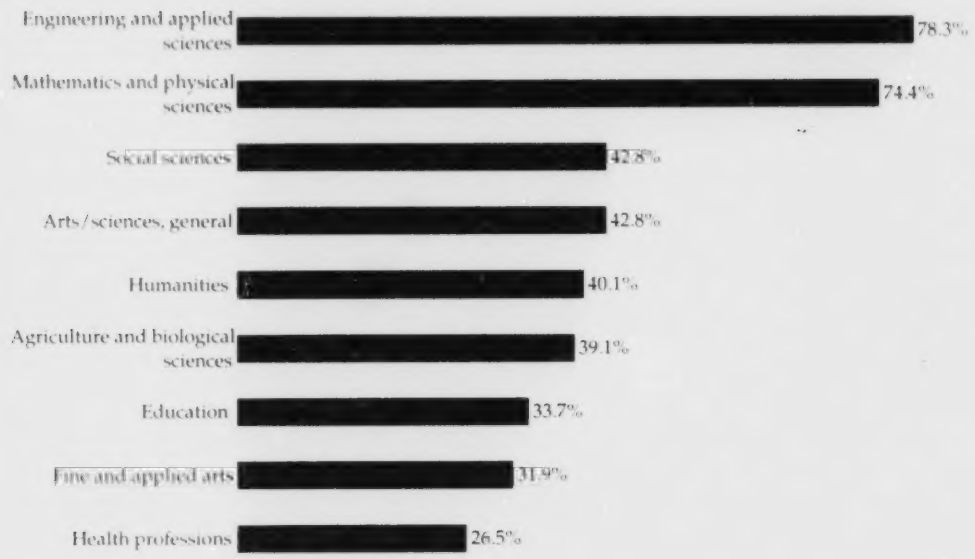
University undergraduate enrolment by field of study and sex, B.C., 1996-1997

	FULL-TIME				PART-TIME				TOTAL HEADCOUNT			
	Male	Female	Total	% Male	Male	Female	Total	% Male	Male	Female	Total	% Male
Agriculture and biological sciences:	**1,264**	**1,998**	**3,262**	**38.7%**	**294**	**432**	**726**	**40.5%**	**1,558**	**2,430**	**3,988**	**39.1%**
Agriculture	155	194	349	44.4%	16	33	49	32.7%	171	227	398	43.0%
Biology	779	1,176	1,955	39.8%	213	302	515	41.4%	992	1,478	2,470	40.2%
Household science	39	344	383	10.2%	6	28	34	17.6%	45	372	417	10.8%
Other	291	284	575	50.6%	59	69	128	46.1%	350	353	703	49.8%
Education:	**1,343**	**2,369**	**3,712**	**36.2%**	**418**	**1,096**	**1,514**	**27.6%**	**1,761**	**3,465**	**5,226**	**33.7%**
Education	695	1,730	2,425	28.7%	237	880	1,117	21.2%	932	2,610	3,542	26.3%
Physical Education	648	639	1,287	50.3%	181	216	397	45.6%	829	855	1,684	49.2%
Engineering and applied sciences:	**2,786**	**770**	**3,556**	**78.3%**	**468**	**130**	**598**	**78.3%**	**3,254**	**900**	**4,154**	**78.3%**
Architecture	3	-	3	100.0%	3	1	4	75.0%	6	1	7	85.7%
Landscape architecture	40	33	73	54.8%	5	3	8	62.5%	45	36	81	55.6%
Engineering	2,266	488	2,754	82.3%	343	80	423	81.1%	2,609	568	3,177	82.1%
Forestry	477	249	726	65.7%	117	46	163	71.8%	594	295	889	66.8%
Fine and applied arts	**389**	**818**	**1,207**	**32.2%**	**135**	**302**	**437**	**30.9%**	**524**	**1,120**	**1,644**	**31.9%**
Health professions:	**709**	**1,399**	**2,108**	**33.6%**	**50**	**708**	**758**	**6.6%**	**759**	**2,107**	**2,866**	**26.5%**
Dental studies and research	87	71	158	55.1%	-	-	-		87	71	158	55.1%
Medical studies and research	354	334	688	51.5%	1	3	4	25.0%	355	337	692	51.3%
Nursing	33	483	516	6.4%	24	644	668	3.6%	57	1,127	1,184	4.8%
Pharmacy	174	320	494	35.2%	13	14	27	48.1%	187	334	521	35.9%
Rehabilitation Medicine	47	162	209	22.5%	1	1	2	50.0%	48	163	211	22.7%
Other	14	29	43	32.6%	11	46	57	19.3%	25	75	100	25.0%
Humanities:	**1,338**	**1,789**	**3,127**	**42.8%**	**648**	**1,173**	**1,821**	**35.6%**	**1,986**	**2,962**	**4,948**	**40.1%**
History	321	313	634	50.6%	161	169	330	48.8%	482	482	964	50.0%
Languages	389	1,035	1,424	27.3%	223	638	861	25.9%	612	1,673	2,285	26.8%
Other	628	441	1,069	58.7%	264	366	630	41.9%	892	807	1,699	52.5%
Mathematics and physical sciences:	**1,514**	**581**	**2,095**	**72.3%**	**719**	**188**	**907**	**79.3%**	**2,233**	**769**	**3,002**	**74.4%**
Chemistry	169	166	335	50.4%	70	45	115	60.9%	239	211	450	53.1%
Geology	48	46	94	51.1%	12	8	20	60.0%	60	54	114	52.6%
Mathematics	134	107	241	55.6%	67	36	103	65.0%	201	143	344	58.4%
Computer science	973	209	1,182	82.3%	518	87	605	85.6%	1,491	296	1,787	83.4%
Physics	178	40	218	81.7%	47	9	56	83.9%	225	49	274	82.1%
Other	12	13	25	48.0%	5	3	8	62.5%	17	16	33	51.5%
Social sciences:	**4,355**	**5,408**	**9,763**	**44.6%**	**1,879**	**2,937**	**4,816**	**39.0%**	**6,234**	**8,345**	**14,579**	**42.8%**
Business, management and commerce	2,079	1,849	3,928	52.9%	724	707	1,431	50.6%	2,803	2,556	5,359	52.3%
Economics	260	211	471	55.2%	111	75	186	59.7%	371	286	657	56.5%
Geography	353	349	702	50.3%	167	138	305	54.8%	520	487	1,007	51.6%
Law	438	404	842	52.0%	45	32	77	58.4%	483	436	919	52.6%
Political science	295	304	599	49.2%	131	122	253	51.8%	426	426	852	50.0%
Psychology	383	1,033	1,416	27.0%	246	662	908	27.1%	629	1,695	2,324	27.1%
Social work	57	346	403	14.1%	65	481	546	11.9%	122	827	949	12.9%
Sociology	179	413	592	30.2%	176	327	503	35.0%	355	740	1,095	32.4%
Other	311	499	810	38.4%	214	393	607	35.3%	525	892	1,417	37.1%
Arts/sciences, general	**4,969**	**7,022**	**11,991**	**41.4%**	**2,437**	**2,894**	**5,331**	**45.7%**	**7,406**	**9,916**	**17,322**	**42.8%**
Not reported	304	488	792	38.4%	1,501	2,610	4,111	36.5%	1,805	3,098	4,903	36.8%
TOTAL	**18,971**	**22,642**	**41,613**	**45.6%**	**8,549**	**12,470**	**21,019**	**40.7%**	**27,520**	**35,112**	**62,632**	**43.9%**

SOURCE: Tables 15 and 16, *Education in Canada, 1998*, Statistics Canada, 1999(a).

Figure 6

Males as a proportion of university undergraduates by field of study, 1996-1997



SOURCE: Tables 15 and 16, *Education in Canada, 1998*, Statistics Canada, 1999(a).

Table 20 and ***Figure 7*** provide information on graduate-level enrolments by broad field of study. Men are over-represented in **Engineering and applied sciences**, **Mathematics and physical sciences**, and **Agriculture and biological sciences**. It can be expected that, at least in the last category, women will continue to make up more graduate students as their share of undergraduate degrees grows.

Table 20

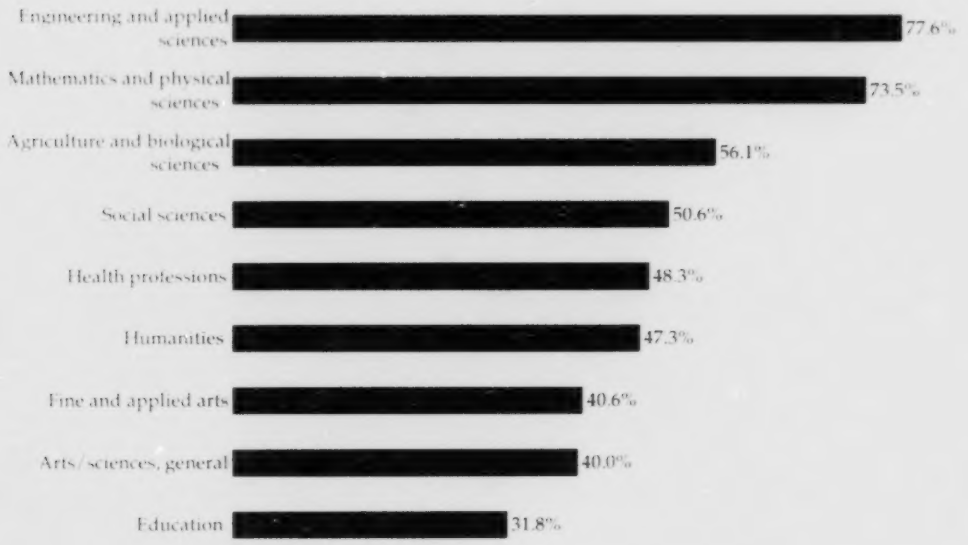
University graduate enrolment by field of study and sex, B.C., 1996-1997

	FULL-TIME				PART-TIME				TOTAL HEADCOUNT			
	Male	Female	Total	% Male	Male	Female	Total	% Male	Male	Female	Total	% Male
Agriculture and biological sciences	481	367	848	56.7%	9	17	26	34.6%	490	384	874	56.1%
Education	553	1,059	1,612	34.3%	242	645	887	27.3%	795	1,704	2,499	31.8%
Engineering and applied sciences	948	280	1,228	77.2%	76	15	91	83.5%	1,024	295	1,319	77.6%
Fine and applied arts	111	161	272	40.8%	3	6	9	33.3%	114	167	281	40.6%
Health professions	586	525	1,111	52.7%	18	121	139	12.9%	604	646	1,250	48.3%
Humanities	563	618	1,181	47.7%	90	110	200	45.0%	653	728	1,381	47.3%
Mathematics and physical sciences	770	275	1,045	73.7%	28	13	41	68.3%	798	288	1,086	73.5%
Social sciences	1,217	1,182	2,399	50.7%	228	227	455	50.1%	1,445	1,409	2,854	50.6%
Arts/sciences, general	99	145	244	40.6%	39	62	101	38.6%	138	207	345	40.0%
Not reported	8	5	13	61.5%	13	32	45	28.9%	21	37	58	36.2%
TOTAL	5,336	4,617	9,953	53.6%	746	1,248	1,994	37.4%	6,082	5,865	11,947	50.9%

SOURCE: Tables 17 and 21, *Education in Canada, 1998*, Statistics Canada, 1999(a).

Figure 7

Males as a proportion of university graduate students by field of study, 1996-1997



SOURCE: Tables 17 and 21, *Education in Canada, 1998*, Statistics Canada, 1999(a).

Degrees

In 1996, men earned 42% of bachelor and first professional degrees in B.C., 46% of master degrees, and 69% of doctorates (***Table 21***). Two years later, their share of undergraduate degrees remained the same while they earned a greater proportion of master-level degrees and a smaller proportion of doctorates.

Table 21

Degrees granted by sex, 1998

			Male as % of Total	
	Male	Female	1998	1996
Bachelor and first professional degrees	4,949	6,944	42%	42%
Master degrees	1,071	1,177	48%	46%
Earned doctorates	316	183	63%	69%

SOURCE: Table 2, *Education Quarterly Review*, Statistics Canada, 2000(a), p. 56.

Gender differences in college/institute outcomes

Results of the 1998 B.C. College and Institute Student Outcomes Survey[6] indicate that traditional sex roles in British Columbia's colleges and institutes extend far beyond the high-tech fields. According to an analysis completed by the Centre for Education Information (CEISS), males and females differ on program choices, grade point average, satisfaction with their studies, full- and part-time work, and occupation.

GPA: As in previous years, females responding in 1998 had a higher cumulative grade point average (GPA) than males, even controlling for program area. Overall, females' average GPA was 3.01 while males' was 2.84. Among former **Applied** students only, mean GPAs were 3.13 and 2.94 respectively; among former **Arts and Sciences** students, the figures were 2.87 and 2.75.

Program satisfaction: Female students expressed slightly more satisfaction with their program of studies than did males: 42% of females were completely satisfied compared to 39% of males, while 85% of females were either mainly or completed satisfied compared to 83% of males.

Program choices: There was little difference between men and women in **Arts and science**, where the most common program was **Liberal arts and sciences/liberal studies**. Differences were quite pronounced in applied programs, however, where the most common programs for women were preparation for caring occupations, such as **Home health aide**, **Administrative assistant**, **Nursing** and **Early childhood education**. Men, on the other hand, most commonly studied in the fields of **Engineering technician**, **Business administration and management**, **Welding**, **Automotive mechanic/technician**, and **Computer systems analysis**.

Co-operative education: Men were twice as likely as women to have participated in a co-operative education program, which involves paid work terms and is recognized by the Ministry of Advanced Education, Training and Technology. This probably has a great deal to do with program choices, as preparation for caring occupations in health, education and social services is more likely to involve an **unpaid practicum**, while men's emphasis is on private-sector occupations.

Current activities: Males' and females' current activities were similar: just over 50% of each group were working, about 20% were both working and studying, 16% were continuing their studies and not working, and 11% were participating in other activities. Of those who had continued their studies in the same field, about half of

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[6] The B.C. College and Institute Students Outcomes Survey is conducted annually to collect data from students 9 to 12 months after completing their educational program at a B.C. college or institute. In the spring of 1998, 18,113 of 30,455 eligible former students from B.C.'s 21 public colleges and institutes provided information about their levels of satisfaction with their former programs and their current activities.

Applied and half of Arts and Sciences students felt very well prepared, but females had an edge of about 4%.

Labour force participation: Males were more likely to be in the labour force—88% compared to 85% of females. Males reported being unemployed more often than females (18% versus 15%). When asked why they were not working, there was an equal tendency among both male and female former students to refer to inability to find a job, having been laid off, or studying. Men, however, were more likely to have refused jobs because of low salaries, whereas females were most likely to cite "caring for family or other responsibilities"—82% of those who gave this reason were female.[7]

Program relationship to training: Of students who had completed an applied program and were working, women were more likely to say their job was "very related" to their training—58% compared to 52% of males. Women were also more likely to believe that their training was very useful in getting their jobs (57% to 51%) and performing their jobs (42% to 37%).

Most common occupations: Table 22 displays the most common occupations for students who completed a training-related college or institute program. Females' top four career choices are exclusively in the caring professions. With the exception of Computer programmers, "the most common occupations related to [males'] training are surprising in the sense that a similar list might have emerged 40 years ago" (CEISS, 2000a).

There is also a strong public sector-private sector divide between men's and women's training choices. Men's occupations are mostly related to the private sector, where salaries have been rising more rapidly in recent years, while women's are primarily in health, education, and social services—all in the public or not-for-profit domains. These choices have implications for women's income and job security in the future as all levels of government attempt to reduce costs—primarily by legislating or negotiating low or no salary increases and privatizing services.

Pay: Since many of their chosen occupations are traditionally lower paying, and since women have a greater tendency to work part-time, **female college graduates have lower salaries, on average, than their male counterparts.** Overall, females' median gross monthly salary at the time of the survey was $1,917, while males' was 24% higher, at $2,382. Considering only those who worked full-time, females' median salary was $2,135 and males earned $2,500—a difference of 17%.

[7] These figures reflect only individuals who reported being "in the labour force." It may be more socially acceptable for a young woman who has been unable to find a job to say it is because of family responsibilities and that she is therefore not really in the labour force.

Table 22

Training-related occupations, 1998

MALE		FEMALE	
Most common occupations[a]	**Salary ($)[b]**	**Most common occupations[a]**	**Salary ($)[b]**
Welders	3,200	Registered nurses	2,999
Motor vehicle mechanics	1,732	Nurse aides and orderlies	1,900
Computer programmers	3,000	Early childhood educators	1,600
Cooks	1,541	Community and social service workers	2,000
Drafting technologists and technicians	2,500	Visiting homemakers, housekeepers & related occupations	1,677

a. Most common training-related occupations for former male or female students of applied programs.

b. Median gross monthly salary of those who reported.

SOURCE: *Gender differences in B.C. college and institute student outcomes*, CEISS, Spring 2000(a); unpublished data from CEISS.

Part-time work: Among former students of college and institute programs, males in the labour force were more likely than females to be working full-time: 69% compared to 60%. Females were twice as likely to be working part-time: 25% of females worked part-time compared to 13% of males. Of former applied program students, 19% of women and 9% of males were working part-time; among former arts and sciences students, 30% of males and 41% of females were working part-time.

Summing up the results of the 1998 B.C. College and Institute Student Outcomes Survey, CEISS's analysts conclude:

> **It can then be argued that, while female students are more successful in school, males do better in the labour market. These findings seriously compromise any argument that suggests that males are at a greater disadvantage because they are lagging behind academically.** (CEISS, 2000a)

Health

This section examines selected health indicators for males and females, where health is broadly defined to include one's sense of well-being and harmony in the world. It is widely accepted that health and education are inextricably linked. Some of the factors that affect boys' and girls' health include clean air and water; adequate nutrition, physical activity, and rest; loving relationships with others (secure attachment); freedom from physical, environmental, and psychological abuse; and acknowledgement and respect from the community. In spite of these similar needs, boys and young men are at higher risk for many, but not all, ailments, conditions, and injuries: Gender is one of the key factors influencing health. Life expectancy at birth is still 5.6 years longer for females (women: 81.6 years, men: 76.0) (Ministry of Women's Equality, 2000), but women experience more disability and chronic disease than men (Advisory Committee on Population Health [ACPH], 1999b).

Overall indicators

Researchers Caputo and Kelly (1998) used data from the National Longitudinal Survey of Children and Youth (NLSCY) to examine how "social processes related to gender affect the ability of girls and boys to lead healthy lives." They found no differences in analyzed variables for infants under 1 year of age, but by the age of 1-3, subtle behavioural differences in temperament and empathetic behaviour were already emerging, foreshadowing much greater differences among boys and girls aged 4-11. "For boys specifically," wrote the authors, "our analysis reveals that they are faced with a range of factors that impact upon their health."

By the age of 1-3, boys had a slightly higher tendency to be hyperactive or restless, and to be less empathetic towards others. Among children **aged 4-11**, there were no major differences in health, although boys had a marginally higher chance of having long-term health problems. **By Grade 1, boys had less positive relationships with teachers**. Boys aged 4-11 are more likely to view violent movies and television shows. There were few reportable learning differences between the 2 groups, however, including no differences in mathematical ability, although girls are more likely to excel at reading, writing and school overall. The most pronounced differences were **behavioural**, with boys more likely to be:

- destructive of their own and others' belongings;
- temperamental (i.e., to fidget, be hyperactive/restless, or be impulsive);
- less pro-social (i.e., more likely to lie and disobey, less likely to display empathy); and
- more violent (i.e., to fight, hit, kick, or bite).

According to the McCreary Centre Society's second Adolescent Health Survey (AHS II), **B.C.'s male teenagers tend to rate their own health more highly than do females:**

- 90% of male students report that their **health is excellent or good** compared to 85% of females;
- 33% of males and 46% of females experience a **physical ailment** such as stomachache, headache, or backache at least once a week;
- 42% of males and 48% of females experience an **emotional health problem** such as feeling irritable or depressed at least once a week;
- girls **exercise** less often than males, a gap that widens as students get older: 67% of 17-year-old males and 49% of females exercise at least 3 times per week;
- 20% of females and 14% of males routinely skip **breakfast.**
(McCreary Centre Society [MCS], 1999).

In their recent World Health Organization cross-national study of children's health, King, Boyce and King (1999) echoed the gender concerns raised by AHS II:

> While today's young women continue to be better adjusted at school than young men, to attain higher levels of school achievement and to be more likely to aspire to and to participate in post-secondary education, they also show evidence of higher levels of stress. For example, girls are far more likely to be concerned about their appearance; to diet; to take medication; to have headaches, backaches and stomachaches; to lack confidence and to suffer periods of depression. They are closing in on boys in the proportion who use drugs and alcohol and are well ahead of boys in the proportion who smoke....
>
> How they appear to others has become even more important for young women who view their appearance as a fundamental component of a successful career. Concerns about marriage, family and career must seem almost overwhelming for young women today. The stress of competing at school is so great for some that they may disengage from school and, sooner or later, may associate with others who have had similar experiences. (p. 104)

What is needed, these authors stress, is "a sensitive, caring support system involving the school, the home and the community" to help both boys and girls through the complex transitions of adolescence (King, Boyce, & King, 1999).

Low birth weight

Infant survival and overall health in childhood are both affected by birth weight. Girls are more likely than boys to be underweight at birth (less than 2,500 grams), perhaps because females are generally smaller than males. Of girls born in 1996, 6.2% were low birth weight (LBW), compared to 5.3% of boys. Corresponding figures for 1970 were 8.6% of newborn girls and 7.1% of newborn boys, so these

figures have improved. Although the prevalence of LBW has been declining over time, the percentage of females in this category has consistently been higher than that of males (ACPH, 1999a).

Childhood cancer

Boys and teenaged males have a higher overall rate of cancer than females (Huchcroft et al., 1995). This holds true for almost all types of cancer, the main exceptions being kidney and epithelial cancers, which occur more frequently in girls.

Smoking

Unfortunately, smoking among teenagers is increasing. These days, girls are more likely to smoke than boys. Of 12- to 18-year-olds, 12% of females and 9% of males smoke regularly, while 57% of boys have never smoked, compared to 53% of girls (MCS, 1999). Younger smokers are also much more likely than other age groups to smoke during pregnancy (ACPH, 1999a).

HIV and AIDS

To date, AIDS has affected males in Canada disproportionately, by a ratio of 14 to 1 reported cases and deaths. Before 1995, women made up only 6% of adult cases but, 2 years later, the proportion had more than doubled, to 13%. Growing numbers of HIV cases among women imply that this percentage will continue to increase. In B.C., women now are 20% of new HIV cases (Ministry of Women's Equality, 2000). Currently, half of new infections nationally are among injection drug users (ACPH, 1999b). There are strong implications for sex education and lifestyle education in schools.

Injuries

Injuries are the leading cause of death among children and youth, responsible for more deaths than all diseases combined. Injuries may be either intentional—the result of deliberate violence such as child abuse, homicide or suicide—or unintentional—the result of involuntary accidents such as motor vehicle collisions, falls, and poisoning. Males are affected more than females.

Unintentional injuries

On average each year among young people aged birth to 24 years, unintentional injuries result in numerous emergency room visits, 13,000 hospital admissions, and 270 deaths. Many of these injuries could be prevented. The B.C. Injury Research and Prevention Unit, based at the Children's and Women's Health Centre of British Columbia, has determined that:

- In the 0-4 age category, there is little difference in injury **rates** for boys and girls. Boys experience more injuries than girls in all other age categories. Males aged 0-24 experienced 84,400 injuries between 1987 and 1996 compared to 47,659 for females.
- Boys experience significantly higher **mortality** due to injury than do girls. For all males ages 0 to 24, the yearly average mortality rate for 1987 to 1996 was 34 per 100,000; for girls, it was 12. The highest mortality rates for both sexes are among those aged 0-4 and 15-24.
- Motor vehicles are the leading cause of **mortality** among both males and females, whether as occupants, pedestrians, cyclists, or motorcyclists. Males' average yearly rate of 21.4 is nearly 3 times the female rate of 7.8. Both sexes are experiencing downward trends over time.
- Drowning (3.3 per 100,000), poisoning (1.9), falls (1.4) and fire, flames or hot substance (1.2) are the next 4 leading causes of **mortality** due to unintentional injury among males. Among females, poisoning is second (0.92), followed by fire, flames or hot substance (0.87), drowning (0.8), and suffocation (0.5).
- Boys experience significantly more **hospital separations**[8] than girls. The overall rate for males aged 0-24 is 1,424 per 100,000; for females, 838. The highest rates are for those aged 15-24; in that age group, young men are admitted almost twice as often as young women (1,830 vs. 958).
- Falls are the leading cause of **hospital separations** for both males and females. (Soubhi et al., 1999)

Workplace injuries

Overall, 44 young workers are injured every work day in B.C. Each week, 5 are permanently disabled because of workplace accidents. In 1999, 9 young workers were killed in work-related accidents. A disproportionate number of those injured are male (Workers' Compensation Board [WCB], 2000a).

Men aged 15-24 have the highest workplace injury rates in British Columbia. These young males experienced 6.2 claims per 100 person-years of employment in 1999, more than 50% higher than the overall provincial injury rate of 4.1. In other words, 3 of every 50 young working males are injured on the job in B.C. each year (WCB, 2000b).

By contrast, young women aged 15-24 have the lowest injury rate in the province (2.1). Young men are almost 3 times as likely to experience work-related injuries as young women, perhaps because they are more often in higher risk jobs; however,

[8] B.C. hospitals must formally admit any patient who stays more than 6 hours. Data are collected for every department except emergency. An individual may be admitted and discharged several times during a year; therefore, counts are of **separations** rather than **individuals**.

the Workers' Compensation Board (WCB) notes that injuries occur not only in construction, forestry, manufacturing and other hazardous industries, but also in the hospitality and retail service industries where most youth work (WCB, 2000c).

The good news is that young men's injury rates—as well as their time-loss claims and days of work lost—have been declining fairly steadily since 1990. In 1990, the rate for males 15-24 was over 12; by 1993 it was 9.5 (WCB, 2000b).

Unfortunately, about 20% of young worker accidents occur in the first month of work while more than half occur in the first 6 months on the job. The WCB offers 5 hours of occupational health and safety information, taught by teachers, for which all Grade 10 to 12 students are eligible through Career and Personal Planning (CAPP); it also developed the Student WorkSafe program offered in Kindergarten to Grade 9 classes (WCB, 2000d). These and other public education initiatives are necessary to prevent future workplace injuries and deaths among young (WCB, 2000e).

Mental health

Stress

Both young men and young women are reporting higher stress levels than they were several years ago, but **more females than males are affected**. This means less time for family, friends and leisure. In the 1998 General Social Survey (GSS), more than **1 in 5 females** aged 15-24 **(22%)** reported being severely time-stressed compared to **1 in 10 males (10%)**.[a] In other words, young Canadian women of high-school and post-secondary age were twice as likely to be time-stressed as young men. Six years earlier, 18% of women and 7% of men in this age group reported severe time stress.

Breaking the figures down even further, female students aged 15-17 were 5 times as likely as males to feel time-stressed (20% vs. 4%) and female students aged 18-24 half again as likely as their male counterparts to feel this way (11% vs. 17%), although these figures should be used with caution because of small sample sizes.

Parents aged 25-44 who were employed full-time experienced the greatest rates of time stress. Among mothers aged 25-44 and employed full-time, whether married or not, 38% were severely time-stressed, compared to 26% of fathers in the same category. Almost half of married women working full-time whose children were under age 5 reported being severely time-stressed. Lone-parent mothers employed full-time had the least leisure time of any group.

[a] GSS respondents who agreed with 7 out of 10 stress-related questions were determined to be "severely time stressed."

The only age-sex group in which men had a higher tendency to feel very time-stressed was among married non-parents aged 25-44 who were employed full-time. In this group, 26% of men and 20% of women felt very time-stressed (Statistics Canada, 1999f).

Depression

A recent cross-national study by the World Health Organization found that **13- and 15-year-old females consistently rated lower than males on measures of psychological well-being**. The 1996–1997 National Population Health Survey of Canada found that adolescents have the lowest levels of psychological well-being of all age groups: "Depression was most common among 18- and 19-year-olds of both sexes, and young women aged 15 to 19 were the most likely of any sex-age group to exhibit signs of depression (9%)" (ACPH 1999b, p. 83). Young women in B.C. are almost twice as likely as young men to report having experienced emotional distress: 11% of 17-year-old females vs. 6% of males the same age (MCS, 1999).

Suicide

While females are most likely to have suicidal thoughts (8.4% of 12- and 13-year-old girls and 4.6% of boys of the same age; Statistics Canada, 1999c), and to attempt suicide (9% within previous year compared to 4% of males; MCS, 1999), **males are four times more likely to actually commit suicide than females**. In 1996, 78% of the 3,941 suicides in Canada were committed by men. The groups most affected by suicide are males aged 20–24 and 35–44 years (29 and 30 per 100,000 population, respectively); among women, the highest rate of suicides is from 45-54 years (10 per 100,000) (ACPH, 1999a).

Of particular concern is suicide rate among youth aged 15 to 19, which doubled from 1970 to 1983 (from 7 to 14 per 100,000). Males accounted for all of this increase as the rate for females of this age group declined somewhat during the same period. The rate for 15–19 year old males is currently 18.5 per 100,000 population.

Young Aboriginal males, especially Inuit, are at especially high risk for suicide, although the rates are difficult to calculate precisely.

Another Health Canada study found that gay men were six times as likely, and lesbians twice as likely, as their unmarried heterosexual male and female counterparts to attempt suicide (ACPHa, 1999, p. 314).

Eating disorders

Eating disorders have been defined as "behavioral solutions to psychological conflicts that produce medical complications," and only occur where thinness is valued and excess calories are available (Andersen, 1999). Preoccupation with body image is alive and well among B.C.'s teenagers: More than half (52%) of female teens

are trying to **lose weight**, compared to 1 in 5 males (19%). On the other hand, 27% of males but only 4% of females are trying to **gain weight** (MCS, 1999).

In the general population, **anorexia nervosa is diagnosed up to 10 times more often among females than among males**; however, there are only twice as many females as males with binge-eating disorder (Andersen, 1999). Exact numbers are not known, but it has been estimated that from 1% to 5% of the female population are severely affected by eating disorders (Ministry of Women's Equality, 2000). AHS II supports these estimates: 9% of girls reported **bulimic** behaviour compared to 5% of boys; for 3% of girls this behaviour occurs more than once a month (MCS, 1999).

Gender stereotyping—the belief that eating disorders afflict only females—may prevent some males with eating disorders from being diagnosed and treated.[10] Among anorexic females, for instance, 75 to 80% believe they need to lose weight, whereas 40% of affected males want to gain weight and 40% want to lose weight. Similarly, females with eating disorders tend to focus on their weight and be dissatisfied with their bodies from the waist down; males, on the other hand, tend to focus on body shape and dislike their upper bodies (Andersen, 1999).

A relatively new syndrome known as **reverse anorexia nervosa** or, more recently, **muscle dysmorphia**, has been identified among young males (Andersen, 1999; Hall, 1999). In this disorder, large, muscular males perceive themselves as weak and skinny, in contrast to anorexic females who see the skinny female in the mirror as obese. Quantifying the extent of this syndrome is difficult, as males are culturally less likely to discuss their emotional and physical problems.

Psychiatrist Harrison Pope and his colleague Roberto Olivardia conducted the "G.I. Joe study" on male action figures—the male counterpart to the projections of Barbie-doll measurements onto the average female frame. If the 1964 version of G.I. Joe had been an average 5'10" male, he would have had a 44" chest, 32" waist, and 12" biceps. **Today's Batman, by contrast, would have a 57" chest, 30" waist and 27" biceps** (fairy-tale stuff, even among the most bulked-up bodybuilders) (Hall, 1999).

There is concern that these relatively new cultural expectations for and objectification of the male body—also seen in "shockvertising" such as Calvin Klein ads—may be reflected in a new wave of body-image disturbances among boys and men. Researchers such as Joseph H. Pleck, and Dan Kindlon and Michael Thompson (co-authors of *Raising Cain*), have linked "masculinity ideology"—idealizing the stereotypically muscle-bound, emotionally closed-off, tough male—to a propensity towards engaging in risky sexual behaviours, abusing drugs and alcohol, and experiencing legal and educational problems. There is even evidence that ADHD and learning disabilities are much higher among males who subscribe to this ideology (Hall, 1999).

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[10] Similarly, coronary artery disease may be under-diagnosed and under-treated in women, and osteoporosis may be overlooked in men (Andersen, 1999).

Sexual activity

Teenage pregnancy

Childbearing during the teenage years drastically circumscribes young women's educational, economic, social and other life choices, as well as those of their children. Most become lone parents: Only 19% of teenage women who gave birth in 1994 were married, compared to 75% in 1974. Social supports are poor, and almost half of female-led lone parent families are considered low income. The average income of families with lone parents aged 15 to 24 was $23,115 in 1995, compared to $58,763 for two-parent families of all ages (Statistics Canada, 1998b). There is evidence that many American teens who become parents are already economically and educationally disadvantaged before having children. "Early childbearing often compounds these early disadvantages and makes it more difficult for young parents to keep pace with their peers who do not become parents in their teenage years" (Alan Guttmacher Institute, n.d.).

To compound the difficulties, the National Longitudinal Survey of Children and Youth (NLSCY) has shown that children in lone-parent families are at higher risk for a number of problems than children in two-parent families: 41% had at least one of the problems identified in the survey compared to 26% of children in two-parent families. In low-income, single-mother families, for instance, 34% of children had a behaviour problem, compared to 21% of children in low-income, two-parent families. By the same token, in non-low-income families, 28% of children with a single mother and 18% of children with two parents had behaviour problems. Low income makes matters worse, but early analysis of the NLSCY indicates that the environment has a strong influence: Positive parenting strategies and supportive neighbourhoods can counteract the risks (Statistics Canada, 1996).

The teenage pregnancy rate is the number of pregnancies per 1,000 women aged 15 to 19 where pregnancies equal the sum of live births, therapeutic abortions, and miscarriages/stillbirths. Just over half of teen pregnancies in Canada resulted in live births in 1994 compared to about two-thirds in 1974 (Wadhera & Millar, 1997). **There are fewer teenage pregnancies and a lower rate of teen pregnancies now than in 1974.**

The teenage pregnancy rate in Canada was at its highest in 1974 (54 per 1,000) then declined until reaching its lowest point in 1987 (41.1). The rate then rose gradually until it hit 48.1 in 1992 and has been fluctuating ever since. The rate in 1995 was 47 pregnancies per 1,000 women aged 15 to 19 (Wadhera & Millar, 1997; Canadian Council on Social Development (CCSD), 1998). Some observers are alarmed that the teen pregnancy rate is increasing in Canada while it is declining in the U.S.; nonetheless, the U.S. rate is double Canada's and tops a list of 13 developed countries (National Campaign to Prevent Teen Pregnancy, 1997).

Recent statistics on sexual activity among adolescents in Canada and B.C. may herald fewer teen pregnancies in the future. For example, the proportion of Canadian teenagers aged 15 to 19 who have had sexual intercourse declined between 1990 and 1996: by 12 percentage points for females (to 51%) and 14 percentage points for males (to 43%) (CCSD, 1998). And in B.C., teens are waiting longer to have intercourse than they were in 1992, and the percentage who have had intercourse is declining (about 24% of male Grade 7-12 students and 23% of females in 1998, down from 33% of males and 28% of females in 1992) (MCS, 1999).

For further information on teenage pregnancy, consult the BCTF Research Report *Teenage pregnancy in Canada and the provinces, 1974 to 1998* (Schaefer, 1999b).

Availability of sex education/sexual health education courses

International comparisons indicate that the following factors contribute to lower adolescent pregnancy rates: sex education and other education programs in which parents and teens participate actively, frank discussions of sexuality in the media, and open access to contraceptives (Wadhera & Millar, 1997). Sex education programs alone cannot be expected to stem the number of teenage pregnancies, but they are a start.

The *School Act* requires teachers to teach the learning outcomes in all prescribed courses, including Personal Planning K-7 and Career and Personal Planning (CAPP) 8-12, which cover "Family Life Education." Sex education is also intertwined with a number of other areas, including "Mental Well-Being," "Child Abuse Prevention," and substance and alcohol abuse prevention. ***Table 23*** displays the current Family Life Education learning outcomes prescribed by the British Columbia Ministry of Education (MoE, 1997 and 1999c).

While the curriculum looks adequate on paper, we have no data on whether or how these areas are taught in the various classrooms throughout the province.

Introducing an innovative sex education group in New York State, Weis (2000) raises a number of issues that would have to be considered in any examination of sex education curriculum. She refers to existing research on traditional sex education curricula in U.S. schools, in which:

> (Y)oung men are painted as biologically programmed sexual aggressors, while women are scripted as passive victims whose only subject position is that of *not* provoking easily sexually aroused males. While it is generally acknowledged that there is not nearly enough sexuality education in schools, that which does exist leaves much to be desired. In addition, research shows that compulsory heterosexuality is inscribed throughout the school curriculum and, most prominently, in sex education curriculum, where AIDS is often drawn as a disease solely of homosexuals. (Weis, 2000)

Table 23

Prescribed Learning Outcomes, Family Life Education

PERSONAL PLANNING K-7

Grade K-1
- identify a variety of family groupings
- use appropriate vocabulary to identify the physical characteristics that distinguish males from females
- demonstrate an awareness of the ability of living things to reproduce

Grade 2-3
- describe various roles and responsibilities within families
- identify thoughtful, caring behaviours
- describe how living things reproduce

Grade 4
- identify how their own responsibilities in the family may change
- demonstrate thoughtful, caring behaviours to enhance personal relationships
- describe how the physical characteristics of males and females develop

Grade 5
- describe how families change
- identify the physical, emotional, and social changes associated with puberty
- describe the family's role in developing moral and behavioural standards

Grade 6
- describe family groupings that exist in cultures around the world
- explain the concept of stereotyping
- relate changes at puberty to the human reproductive system
- describe the physical, emotional, and social changes associated with puberty
- access and evaluate sources of information related to their physical, emotional, and social development

Grade 7
- identify stereotypical views of gender roles in the family
- describe the factors that influence the development of healthy relationships
- explain how the human reproductive system works
- assess factors that influence their decision making regarding relationships

CAREER AND PERSONAL PLANNING 8-12

To develop students' understanding of the role of the family and capacity for responsible decision making in their personal relationships.

It is expected that students will:

Grade 8
- describe the evolving nature of roles and responsibilities within families
- identify a variety of factors that influence family relationships
- identify and demonstrate skills to enhance communication with family members
- evaluate the impact of peer, mass media, and social influences on decision making in their personal relationships
- outline the physical, social, and emotional changes associated with puberty

Grade 9
- evaluate the impact on themselves and others of the physical, social, and emotional changes associated with puberty
- identify the components needed to build and maintain healthy relationships
- relate family values and traditions to beliefs and behaviour standards
- identify and evaluate factors that influence responsible sexual decision making

Grade 10
- identify and evaluate factors that influence the family's role in developing moral and behavioural standards
- analyse components needed to build and maintain healthy relationships
- evaluate possible effects of an individual's sexual decisions on self, community, and society

Grade 11 and 12
- analyse the evolving nature of roles and responsibilities in family, community, and workplace relationships
- evaluate components needed to build and maintain healthy relationships in their adult lives

SOURCE: *IRP 1999: Personal Planning K-7*, MoE, 1999(c), and *IRP 1997: Career and Personal Planning 8-12*, MoE, 1997.

Crime and violence

The national crime rate is falling and the violent crime rate was down in 1999 after 15 years of increases. The criminal use of firearms is declining. B.C.'s crime rate dropped nearly 5% in 1999 (Statistics Canada, 2000c). In spite of these facts, there is a public perception that crime and violence are increasing.[11] With respect to teens, the recent AHS II concluded: "Despite well-publicized incidents of youth violence in recent months, there is no evidence that the lives of B.C. youth are becoming more violent" (MCS, 1999, p. 18). Nonetheless, this is one area in which there are marked differences between male and female behaviour, as well as some disturbing trends:

- 42% of males and 18% of females report involvement in fights (more than 2:1 ratio);
- 63% of females and 49% of males have been verbally harassed at school in the past year;
- 39% of males and 24% of males have been threatened with physical harm;
- 17% of males and 6% of females report having been physically assaulted—in other words, the rate for males is nearly 3 times as high as that for females (MCS, 1999).

Among Canadian students, Grade 7 boys are 2 times more likely than girls to **feel unsafe at school** (14% of boys rarely or never felt safe at school compared to 7% of girls). By Grade 10, things had improved, but 8% of boys and 3% of girls still felt unsafe at school. Of Grade 9 males, 10% indicated that most or all of their friends **carry weapons**—perhaps for protection—compared to 2% of females.[12] **Boys are also most likely to bully and be bullied:** In Grade 8, 43% of boys and 35% of girls had been **bullied** in the current school term, while 56% of boys and 40% of girls had **engaged in bullying** behaviour themselves (King, Boyce & King, 1999).

Youth, gender and the justice system

In 1997, 78% of the 121,122 youths **charged with any crime** across Canada were male. The proportion of females being charged is increasing over time: while 22% of those charged in 1997 were female, the figure was only 16% in 1987. Males' criminal activity appears to intensify as they get older, with about half of those charged aged 16-17. In contrast, female criminal charges peak at age 14-15 (43% of suspects). **Male**

[11] Notwithstanding these caveats, it should be noted that British Columbia had the highest provincial homicide rate in 1999 (110 homicides, or 2.7 per 100,000 population). Vancouver and Victoria, with rates of 2.8 per 100,000, were second only to Canada's murder capital, Thunder Bay, which had a rate of 3.2.

[12] "Students were asked, not the sensitive question of whether they carry weapons, but if their friends do" (King, Boyce & King, 1999, p. 22). Note that this choice of words could inflate the results, if one or two weapon-carrying boys are "friends" of many.

youths are the most likely victims of criminal acts by other youths: they make up 36% of victims of youth violence (Statistics Canada, 1998c).

In 1998–1999, about two-thirds of cases heard in youth court in Canada resulted in **convictions**, with probation being the most common punishment (48%) followed by custody at 35%. Most of those **sentenced** are male, but the proportion of convicted offenders who are female rose from 16% in 1992–1993 to 20% in 1998–1999. Females made up 30% of fraud convictions and 32% of minor assault convictions, however. The **courts are tougher on young males than females**: for a conviction of theft of goods worth under $5,000, for example, 27% of males were placed into custody and 53% put on probation, compared to 17% of females placed in custody and 60% put on probation (Statistics Canada, 2000e).

The rate of **violent crime charges** against youth aged 12 to 17 has been falling recently, but was nonetheless 77% higher in 1998 than 10 years earlier, in contrast to a 6% increase in the rate of adult violent crime. This increase may reflect more incidents, or it may reflect a greater propensity to press charges rather than consider alternative resolutions. Furthermore, females are being charged increasingly—perhaps because of "equality" of justice or because females are actually engaged in more violent acts than previously. The rate of female violent crime rose by 127%—in other words, it more than doubled—between 1988 and 1998 while the rate increased only 65% among males (77% overall). Females, however, tend to be charged with the least serious type of assault—common assault (66%). Only 46% of males, in contrast, were charged with common assault; they tend to be more involved in serious violent crimes such as robbery and major assault. Furthermore, females are younger (14-15); **the peak of male youth violence is at 17** (Statistics Canada, 1999g).

Homicide, domestic violence and child abuse

Males are disproportionately both the victims and the perpetrators of homicide, except for spousal homicide. In 1998—when the national homicide rate was at its lowest point in 30 years—males comprised two-thirds of all homicide victims and 90% of those accused of murder (Statistics Canada, 1999e).

The number of **infant homicides** in Canada rose from 13 in 1997 to 23 in 1998, after averaging 12 per year for 10 years. The rise may be due in part to more accurate reporting resulting from provincially mandated coroner's inquests into young children's deaths. Parents, primarily **fathers**, were the killers in most cases: 1 baby was killed by both parents, 11 by the father, and 6 by the mother.

Spousal homicides—including those who were married, separated, divorced or in a common-law relationship—made up 15% of all homicides in Canada over the last 2 decades. Spousal homicide declined gradually throughout the 90s, particularly among women. Of male spousal homicide victims, 60% had a history of domestic violence, but women were, overwhelmingly, the victims: **80% of spousal homicide victims were female** in 1998. Furthermore, "slightly more than half of all female

homicide victims were killed by someone with whom they had an intimate relationship" (Statistics Canada, 1999e). **Young women are most at risk of being killed by a partner** (Statistics Canada, 2000d).

AHS II revealed that 20% of female and 13% of male students have ever been **physically abused**. Females are five times more likely to have been **sexually abused**: 15% of young women and 3% of young men report a history of sexual abuse.

Using data from the 1999 General Social Survey (GSS), Statistics Canada (Statistics Canada, 2000d) has estimated that 8% of women and 7% of men in a spousal relationship had experienced **domestic violence** at least once in the 5 years up to and including 1999. The figures for B.C. were **10% of females and 9% of males. The nature and extent of violence directed towards males and females were qualitatively different, however, with females being victimized by more severe violence**. The GSS revealed that, *of those who had experienced domestic violence in Canada*:

- men had a slightly higher tendency to have been slapped, had something thrown at them, or been kicked, bitten, or hit;
- women had been victims of violence from their partners much more frequently than men;
- women were twice as likely to have been beaten (25% of women who experienced violence compared to 10% of men);
- women were 5 times as likely to have been choked;
- women in violent relationships were 5 times as likely as men to fear for their lives (38% vs. 7%);
- women were 3 times more likely to have been physically injured (40% vs. 13%);
- women were 5 times as likely to have required medical attention (15% vs. 3%); and
- younger women and men were more at risk;
- at least half a million children witnessed violence—in many cases severe violence—between their parents. (Statistics Canada, 2000d)

About the only good news to come out of this survey was that there was a statistically significant decline in the proportion of women experiencing violence between 1993 and 1999 (from 12% to 8%). In addition, the severity of assaults declined slightly (but statistically significantly).

Parenting, the brain and violence

Although all of the pieces of the puzzle have yet to fall into place, current research on the brain is providing clues that may help explain why such a disproportionate number of males exhibit violent behaviour. The following article (see next page) by Vancouver physician Gabor Maté provides a context for much of the "bad news" about males, females, and violence and offers hope that one day there will be appropriate medical treatment for people who behave violently. Dr. Maté points out, however, that "there is much more to the question of boys and violence than just the orbitofrontal cortex, which may explain poor impulse control, but not necessarily the factors that give rise to the impulse nor the ones which feed it" (G. Maté, personal communication, August 17, 2000).

Violence against teachers

According to a recent SFU-BCTF survey (Lyon & Douglas, 1999), **male teachers in B.C. experience overt or covert violence**[13] **more often than their female colleagues.** In 1997–1998, 57% of male, and 46% of female, teachers reported experiencing some type of violence. By the same token, 34% of men compared to 26% of women had experienced **overt** violence (attempted, threatened or actual physical violence) at some point during the course of their careers. Male teachers were also more likely to be the victims of **property damage** some time during their careers (42% vs. 31%). On the other hand, both male and female teachers had the same risk of actual **physical violence** during the year studied (4.4%) while males had only a slightly higher risk on a career basis (12.7% vs. 12.1%).

Three quarters (74%) of **perpetrators of violence** were male; however, 87% of student perpetrators were male. Those who committed acts of violence were usually students within the teacher's school (71%) and were most commonly in their early teens (mean age of 12.9 years). Many of them had a history of behaviour problems (69%) or aggression (59%). Interestingly, among **parents perpetrating violence**, two-thirds were female; their average age was 37. This type of violence was likely to be covert (98%) and occur during parent-teacher interviews (Lyon & Douglas, 1999).

[13] "Violence was defined for participants as 'any threatened, attempted, or actual harm to a person or persons.' Behaviour that would be fear-inducing to the average person also falls within the parameters of this definition.... (T)he definition of violence was deliberately broad, so as to capture the more covert, insidious forms of aggression in addition to the obvious forms of openly physical violence" (Lyon & Douglas, 1999).

A solution to violence is in our hands

We'd judge others less harshly if we knew more about the cerebral cortex

Last week the journal Science reported that in people prone to violence, the portion of the brain responsible for emotional self-regulation appears to be short-circuited. These scientific findings concerning how the brain may malfunction raise questions about our understanding of human behaviour. And they pose a challenge to our fundamental assumptions about education, law and some current child-rearing practices.

Researchers have identified the orbitofrontal cortex as the cerebral area where dysfunction is likely to be located in individuals subject to hostile outbursts and aggression. The orbitofrontal cortex is part of the prefrontal cortex, the area of grey matter most involved in social intelligence, impulse control, and attention. So-named because of its proximity to the eye socket, or orbit, the orbitofrontal cortex is more developed in the right hemisphere, the side of the brain that dominates our emotional functioning. This crucial portion of grey matter appears to have the responsibility of evaluating and regulating emotional impulses, such as fear and rage, generated in the lower brain centres.

Whenever people exhibit impulsive outbursts of emotion accompanied by failures of behavioural self-control, we're likely witnessing short-circuiting of the wiring of the orbitofrontal cortex. Such short-circuiting occurs not only during episodes of overt violence, but also during everyday failures of self-regulation, be it episodes of road rage, or in children throwing temper tantrums on the playground, or in parents "losing it" and screaming at their children.

We tend to view the cortex as the "thinking" part of the brain, and therefore as the initiator of human activity. In reality, one of its most important functions is inhibition.

"The cortex's job is to prevent the inappropriate response, rather than to produce the appropriate one," psychologist and neuroscientist Joseph LeDoux has written. Impulsive outbursts of aggression do not necessarily result from a conscious decision by an individual to do something violent. Instead, there may be a failure on the part of the orbitofrontal cortex to dampen a hostile urge originating in structures deep down in the brain that function well below the level of consciousness. By the time the person becomes aware of the impulse to act, he may have already committed the deed.

As we come to understand the neurophysiological substrate of human behaviours, we should be less inclined to judge and condemn our fellow human beings, and more interested in inquiry into how precisely the brain develops the capacity for self-regulation.

What can interfere with the wiring of the orbitofrontal cortex? Injury to the brain may be at fault, as was the case in some of the subjects reviewed in the Science article. Genetic predisposing factors may also contribute in some cases. However, the commonest source of disruption to the circuitry of self-regulation is neither physical trauma nor heredity, but the absence of the conditions required for proper development.

There is now a large body of evidence suggesting that the infant's emotional interactions with its primary caregivers provide the major influence on the physiological and biochemical development of the brain regions responsible for emotional and behavioural self-control. When infants and young children lack parenting which is emotionally nurturing and consistently available, given in a non-stressed atmosphere, research suggests that problems of self-regulation often result. The greater the deprivation, the less optimally the orbitofrontal cortex is likely to develop and function, and the greater the predictable difficulties in self-regulation.

Children's future brain functioning depends on fully attentive and emotionally consistent parenting during the early years. Were we to fully grasp that fact, current social policies would surely change to support parents in that essential task—rather than, as is now the case, forcing many families to place economic goals above the needs of child-rearing.

Evidence is that the self-regulating parts of the brain can develop throughout the life cycle, depending on the appropriate input from the environment. Were school teachers and administrators to understand the relationship between brain development and behaviour, they would be less punitive in their approach to children with self-regulation problems, more likely to ask themselves what empathic approaches could help such children develop the brain circuits and psychological capacities needed for self-control.

And while the legal system could not excuse violent behaviours based on what PET (positron emission tomography) scans may reveal about the brain, the law could show much more understanding toward human beings whose early lives did not allow for the optimal development of brain structures needed for self-regulation.

There's little doubt that a significant percentage of prison inhabitants have various disorders of self-regulation. Little doubt, too, that prison conditions are virtually designed to exacerbate such mental and physiological brain dysfunctions, rather than to help people gain mastery over them.

Gabor Maté, a Vancouver physician, is the author of Scattered minds: A new look at the origins and healing of Attention Deficit Disorder, 1999.

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Sexual harassment

Lyon and Douglas's survey of teachers considered stalking and sexual harassment separately. Men were more likely to be **stalked** than women (7.0% vs. 4.2%); however, 15.7% of women, compared to 3.5% of men, had experienced **sexual harassment**. Stalkers were most likely to be male (63%) while sexual harassers were overwhelmingly male (93%).

In 1993, the American Association of University Women (AAUW) conducted a national survey of sexual harassment in U.S. public school Grades 8 through 11: 85% of females and 76% of males reported having experienced sexual harassment. Although the rates are similar, the study found that young women who have been harassed are more affected by this type of harassment than young men: they are more frightened in school and feel less confident (AAUW, 1993).

Economic and labour indicators

Initially, students come into contact with the economy and labour market indirectly through their parents' experiences; later on, they may participate directly if they work part-time.[14] When they leave the education system, they experience the labour market directly, whether they seek work, collect income assistance, engage in unpaid work, or some combination of the three. This section examines the persisting differences in males' and females' labour market and economic experiences.

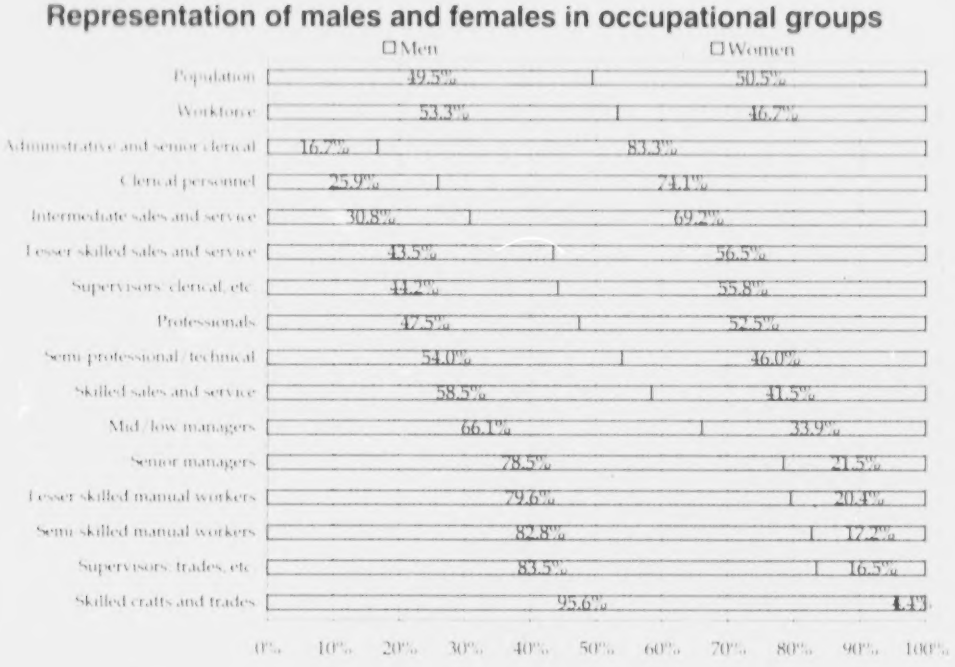
Occupations

In 1996, men made up 49.5% of the B.C. population and 53.3% of the workforce. Based on the latter figure, they were over-represented in a large number of occupational groups (***Figure 8***), comprising:

- nearly 96% of skilled crafts and tradespersons,
- 84% of trades supervisors,
- 83% of semi-skilled manual workers
- 80% of lesser skilled manual workers,
- 79% of senior managers, and
- 66% of mid/low managers.

[14] For a look at how work may affect students, see the BCTF Research Report, *How does working part-time influence secondary students' achievement and impact on their overall well-being?* (Naylor, 1999).

Figure 8



SOURCE: *Earnings and Employment Trends*, BC Stats, July 2000(e).

Careers and aspirations

Data from the 1996 Census indicate that the most common job for Canadian men was **truck driver** while for women it was **retail salesperson**. Five years earlier, retail salesperson topped the list for men and the top job for women was secretary (Statistics Canada, 1998a).

The 10 most frequent occupations for men in Canada as of 1996 were truck drivers, retail salespersons, janitors, retail trade managers, farmers, sales representatives—wholesale trade, motor vehicle mechanics, material handlers, carpenters, and construction trade helpers. By contrast, the top five career choices of boys aged 13-17 in a 1991 Gallup poll were businessman, computers, lawyer, athlete, the arts (Data Based Edutrends, 1998).

The 10 most frequent jobs for Canadian women in 1996 were retail salespersons, secretaries, cashiers, registered nurses, accounting clerks, elementary teachers, food servers, general office clerks, babysitters, and receptionists. The two professions on this list were among the top five dream careers of girls aged 13-17: nurse, teacher, doctor, the arts, businesswoman.

Although teaching can offer an excellent career path, it appears that few adolescent males see it as an option. Boys' value systems and experiences in school may contribute to their lack of interest in teaching as a career, perpetuating the dearth of

male role models in schools. Gardiner (1998) reported on a U.K. survey of 1,095 A-level and vocational students aged 16 to 19 conducted by the National Union of Teachers and the Teacher Training Agency: 39% of females and only 9% of males said teaching was their top career choice. More females than males were concerned about unruly students (64% compared to 53%), while males were enticed by the idea of long holidays. Both males and females would be more inclined to consider teaching if the pay were better, classes were smaller, facilities were improved, and students were more co-operative.

Labour force participation rates

A person is said to participate in the labour force when he or she is working full- or part-time, or is looking for work. Among young men aged **15-24 years**, the labour force participation rate in 1999 was 62.1%, virtually identical to young women's rate of 60.9%. Male youth's labour force participation rate declined by 10.4 percentage points between 1990 and 1999 compared to a decline of 12.7 percentage points for young females, both primarily because of greater educational participation. Recall, however, that young women participate in education at a greater rate than young men.

Among men aged **25-44 years**, 91.3% participated in the labour force in 1999, a decline of nearly 4 percentage points from 1990. Nearly 80% of women in this age group participated (78.7%), 2 percentage points higher than in 1990.

While the participation rate of men aged **45-64 years** was fairly stable (77.8% in 1990 and 78.1% in 1999), women of this age group increased their participation rate by nearly 10 percentage points, from 54.7% to 64.1% (BC Stats, 2000f).

Labour force participation varies with educational attainment: 85% of women with a university degree participate in the labour force compared to 65% of those who have not graduated from high school (BC Stats, 2000d).

Unemployment rates

Overall, B.C. men in 1999 had an **unemployment rate of 9%**, compared to **women's 7.5%**. Men's unemployment rates were higher than women's in every age group:

- 16.1% of males aged 15-24, 12.4% of females
- 8.6% of males aged 25-44, 7.3% of females
- 6.5% of males aged 45-64, 5.5% of females (BC Stats, 2000f).

In 1999, unemployment rates for B.C. workers aged 25 to 54 were higher for men than for women with less than high-school graduation and for high school graduates. Unemployment was also slightly higher for males with a post-secondary certificate or diploma but virtually the same for both men and women with a university degree (BC Stats, 2000a).

Part-time work

Overall in 1999, just over 1 in 5 British Columbia employees worked part-time (21.6%). There was a great difference between the sexes in part-time work, however: **13% of men** compared to **32% of women** were part-time workers (BC Stats, 2000g) According to Statistics Canada, 36% of female part-time workers would rather work full-time (Alden, 1997).

Among B.C. educators (teachers plus administrative officers), 22.8% worked part-time in 1999—8.4% of males and 30.3% of females (MoE, 1990d). By comparison, in 1990, 3.7% of male and 23.1% of female educators worked part-time (overall 15.4%) (Schaefer, 1999a). It is not possible to tell how much of this part-time work is voluntary, i.e., created by teachers' choices; however, there is anecdotal evidence that school boards attempting to control costs and schools using methods such as quarterly timetabling have contributed to increased part-time work.

Incomes of men and women

Average family income in B.C. in 1995 was $60,612 for a family with two spouses, $43,138 for male lone-parent families, and $28,448 for female lone-parent families (Bemmels, Foley, & Thompson, 1998, p. 51).

The female-to-male earnings ratio usually quoted is based on Statistics Canada's Survey of Consumer Finances (SCF). In 1997, the latest year for which data are available, the **SCF** showed that Canadian women working full-year full-time earned only **72.5** cents for every dollar earned by men. The survey definition of "full-year full-time" is problematic since men tend to work more hours than women, but the SCF provides the longest time series available. It is thus able to show changes over time in women's relative earning power—an increase of 14.1 percentage points in 30 years (***Table 24***).

Single women fare the best relative to men's earnings, with a ratio of **91.8**, followed by those aged 15-24 years, at **80.8**. Women with some post-secondary earn 75% of what men earn while women with a university degree earn 73.6% of their male counterparts' income (Statistics Canada, 1997).

In **B.C.,** men's average earnings were $45,050 in 1997 (a 0.7% increase over the previous year) while women's were $32,849 (a 0.5% decline). The overall female-to-male earnings ratio dropped 0.9 percentage points from 73.8% to **72.9%** after improving for 3 consecutive years. For youth aged 15-24, the ratio was 88.1%; for those aged 25-34, it was 79.4%; and for those 45-54 years of age, 70%. Women with some post-secondary education earned 77.2% of their male counterparts while women with a university degree earned 74.4% (BC Stats, 2000c).

Alternative estimates of the female-to-male earnings ratio for Canada in 1997 include the Labour Force Survey (**LFS**) at **82.3%** and the Survey of Labour and

Income Dynamics (**SLID**) at **81.0%**. The LFS provides the most timely data and adjusts for the amount worked, while SLID is the most precise measure.

Table 24

Female-to-male earnings ratio, full-time full-year workers, Canada, SCF

YEAR	EARNINGS RATIO (%)
1967	58.4
1968	not available
1969	58.7
1970	not available
1971	59.7
1972	59.8
1973	59.3
1974	59.6
1975	60.2
1976	59.1
1977	62.1
1978	63.0
1979	63.5
1980	64.4
1981	63.7
1982	64.0

YEAR (cont'd)	EARNINGS RATIO (%)
1983	64.8
1984	65.6
1985	65.1
1986	65.8
1987	66.1
1988	65.4
1989	66.0
1990	67.7
1991	69.6
1992	71.9
1993	72.2
1994	69.8
1995	73.1
1996	73.4
1997	72.5

SOURCE: *Women's earnings relative to men's*, A. Schaefer, BCTF Research Report, 2000.

Both the SCF and LFS show similar patterns when ratios are computed for different demographic groups. For example, the wage gap is lower among younger age groups and for the unmarried under both the SCF and LFS. Ratios by education level are mixed, however. The SCF indicates that women with some post-secondary education earn the most relative to men, followed by those with a university degree, whereas the LFS shows the highest ratio among women with a university degree, followed by those with some post-secondary education.

In an interesting twist, the LFS data indicate that women who work part-time actually earned almost 14% more than their male counterparts in 1998 (Galarneau & Earl, 1999; Statistics Canada, 1995, 1997).

Another measure of men's and women's relative economic power is provided by **Revenue Canada**. These tax-filer data are not strictly comparable to the other methods. For example, the figures include reported **total income**, of which 77% is employment income for men and 66% for women (Canada-wide). Furthermore, a median rather than a mean is used, and the data do not adjust for the amount

worked. In British Columbia in 1997, men's **median total income** was $27,000; women's, at $15,700, was **58.1%** of men's, slightly higher than the Canadian median of 56.7% (Statistics Canada, 1999d).

In B.C. in 1996, 59% of women and 49% of men had annual incomes of less than $30,000. Conversely, 35% of men and 13% of women earned more than $40,000 per year (Bemmels, Foley, & Thompson, 1998, p. 53).

Minimum wage earners

Statistics Canada's Labour Force Survey data indicate that, in 1999, approximately 69,000 B.C. workers were earning the minimum wage of $7.15 per hour. Of those, just over one-third (35%) were male. **Only one-quarter (26%) of minimum wage earners age 25 and over were male.** Males were somewhat underrepresented among those aged 15 to 19 (44%) but slightly over-represented (54%) among those aged 20 to 24 (Ministry of Labour, 2000).

High-technology sector

While it is still a small part of British Columbia's rapidly diversifying economy, the high-technology sector is experiencing dramatic growth and offering lucrative work opportunities. Many industries comprise the sector, but four broad groups of similar size dominate the landscape: **high-technology manufacturing industries**, **computer and related services**, **engineering services**, and two other high-technology service industries combined—**scientific and technical services** and **medical laboratories**.

In 1998, high tech's contribution to GDP rose by 6.2%, 20 times the 0.3% expansion in the B.C. economy. In that same year, high-tech enterprises generated 3% of provincial GDP, comparable to the utilities industries and communications services.

Average weekly earnings of high-technology workers are 38% more than the provincial average. High-tech workers earned, on average, $870 a week in 1999 compared to the overall average of $630. Furthermore, the gap is growing wider: Average high-tech earnings rose 2.5% from 1998, while the provincial average rose only 1.1%.

The number of high-technology jobs is also growing at a much faster clip than the B.C. total—10% (4,700 jobs) in 1999 compared to 0.1% (1,400 net) overall. Sector employment has doubled during the '90s, compared to only 15% growth in overall employment during the same period (BC Stats, & B.C. Information, Science and Technology Agency, 2000).

There are ample opportunities for those who are prepared. And the ones who are prepared are overwhelmingly men: **"The high-tech sector is perhaps one of the most male-dominated sectors of B.C.'s economy, a trend that is mirrored in high-tech programs at B.C.'s colleges and institutes"** (CEISS, 2000b). As noted earlier in this report (***Table 19***), more than 8 in 10 university-level engineering, computer

science, and physics students are male. The same ratio holds at the colleges and institutes where, between 1995 and 1998, 80% of students from high-tech programs[15] were male (CEISS, 2000b).

Paid work, unpaid work and leisure

Based on interviews with nearly 11,000 respondents in the 1998 General Social Survey (GSS), Statistics Canada reported on how Canadians divide their time among:

- **paid work** and related activities, including coffee breaks, commuting and looking for work;
- **unpaid work** including household work, shopping, child care, and civic and voluntary activities;
- **education and related activities**[16];
- **personal care**, including sleep and most meals; and
- **leisure or free time**, comprising socializing, passive leisure such as watching TV or reading, and active leisure such as attending entertainment or sports events.

Perceived lack of time often results in stress, as discussed earlier in this report. Stresses on parents' time can have a cascading effect on children's development and subsequent school and work performance. Conversely, children's participation in household activities—or lack thereof—may be an indicator of their rootedness in family.

Differences persist in men's and women's time-use patterns. For example, among parents aged 25-44 who were employed full-time, men averaged **48.6 hours of paid work** and work-related activities each week; for women, the figure was **38.8** hours. Men in this category, on the other hand, averaged **22.8 hours of unpaid work per week** compared to women's **34.4**.

The following tables display some other highlights of time-use differences, by sex, age and role group.

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[15] excluding **Visual, performing and fine arts**.

[16] "Total work" aggregates paid work, unpaid work, and education. Statistics Canada warns against using this measure: "Part of household management, emotional work and secondary child care are missing from unpaid work, creating an under-measure. In contrast, all time spent at paid work is counted as work. Unlike unpaid work, coffee breaks and other activities such as socializing or down time are included. The total work estimate may be upwardly biased. Thus a comparison of the 'total work' burden between role groups will also be upwardly biased in favour of individuals who spend more time at paid work" (Statistics Canada, 1999b).

The number of hours of paid work is an important indicator of labour market attachment. Related activities include things like commuting, looking for work, unpaid work brought home, and coffee breaks and socializing while at work. As *Table 25* indicates, **males have more paid work hours in every age and role group except for unmarried youth age 18-24 employed full-time**, in which group females work 3% more hours per week than males.

Table 25

Paid work and related activities

	Weekly hours		Difference
	Males	Females	(M-F)
Age 15-17, unmarried student*	6.3	3.5	2.8
Age 18-24, unmarried student*	10.5	7.7	2.8
Age 18-24, employed full-time, unmarried	45.5	46.9	-1.4
Age 25-44, employed full-time, lone parent	-	44.1	
Age 25-44, employed full-time, married parent	48.3	38.5	9.8
Age 25-44, employed part-time, married parent	-	20.3	
Age 25-44, not employed or a student, married parent*	-	1.4	
Age 25-44, employed full-time, married non-parent	49.7	43.4	6.3
Age 25-44, employed full-time, unmarried non-parent	46.9	40.6	6.3
Age 45-64, employed full-time, married parent	48.3	43.4	4.9
Age 45-64, employed full-time, married non-parent	44.8	39.2	5.6
Age 45-64, employed full-time, unmarried non-parent	45.5	41.3	4.2
Age 45-64, not employed or a student, married non-parent	-	-	-
Age 45-64, not employed or a student, unmarried non-parent	-	-	-
Age 65+, not employed or a student, married non-parent	-	-	-
Age 65+, not employed or a student, living alone	-	-	-

* Estimates should be used with caution owing to small sample size.

SOURCE: *GSS: Overview of the time use of Canadians in 1998*, Statistics Canada, 1999(b).

Unpaid work includes activities such as cooking and washing up, housekeeping, maintenance and repair, shopping for goods and services, child care, and civic and voluntary activity. **Women continue to do more unpaid work than men in all age and role groups** (*Table 26*). Even as secondary school students, girls average over 4 hours per week more unpaid work than boys. Interestingly, however, **males and females aged 15 to 24 are equally likely to engage in civic and voluntary activity** (12% of each group) but **males who do so spend more time at it** (2 hours per day vs. 1.5 for females).

Male students aged 15-17 report spending 4.3 hours per day on **education** and related activities—**7.5% more than the 4.0 hours reported by females in this age group**. Among students aged 18-24, however, females spend nearly a third again as much time on their studies as do males—6.2 vs. 4.8 hours per day.

Table 26

Unpaid work

	Weekly hours		Difference
	Males	Females	(M-F)
Age 15-17, unmarried student	6.3	10.5	-4.2
Age 18-24, unmarried student	9.1	11.2	-2.1
Age 18-24, employed full-time, unmarried*	10.5	14.7	-4.2
Age 25-44, employed full-time, lone parent	-	30.8	
Age 25-44, employed full-time, married parent	23.1	34.3	-11.2
Age 25-44, employed part-time, married parent	-	44.8	
Age 25-44, not employed or a student, married parent	-	57.4	
Age 25-44, employed full-time, married non-parent	16.1	22.4	-6.3
Age 25-44, employed full-time, unmarried non-parent	14.0	18.9	-4.9
Age 45-64, employed full-time, married parent	21.0	28.7	-7.7
Age 45-64, employed full-time, married non-parent	17.5	23.8	-6.3
Age 45-64, employed full-time, unmarried non-parent	15.4	24.5	-9.1
Age 45-64, not employed or a student, married non-parent	30.8	40.6	-9.8
Age 45-64, not employed or a student, unmarried non-parent	21.7	37.1	-15.4
Age 65+, not employed or a student, married non-parent	28.0	33.6	-5.6
Age 65+, not employed or a student, living alone	23.1	27.3	-4.2

* Estimate for males in this group should be used with caution owing to small sample size.

SOURCE: *GSS: Overview of the time use of Canadians in 1998*, Statistics Canada, 1999(b).

Free or leisure time (***Table 27***) is what is left over after paid work, unpaid work, education, and personal care activities such as sleeping are taken into account. It may be used for activities such as socializing, watching television, reading, listening to music, participating in active sports, attending concerts or movies, and so forth. **Men have more leisure time than women in every age-role group**. Among secondary school students, boys average 3 hours of free time more than girls each week. Among students aged 18-24, young men experience over 8 hours more leisure time per week than their female counterparts.

Table 27

Free time

	Weekly hours		Difference
	Males	Females	(M-F)
Age 15-17, unmarried student	51.8	49.0	2.8
Age 18-24, unmarried student	44.1	35.7	8.4
Age 18-24, employed full-time, unmarried	43.4	34.3	9.1
Age 25-44, employed full-time, lone parent	-	25.2	
Age 25-44, employed full-time, married parent	29.4	25.2	4.2
Age 25-44, employed part-time, married parent	-	31.5	
Age 25-44, not employed or a student, married parent	-	35.0	
Age 25-44, employed full-time, married non-parent	34.3	30.1	4.2
Age 25-44, employed full-time, unmarried non-parent	39.2	38.5	0.7
Age 45-64, employed full-time, married parent	31.5	27.3	4.2
Age 45-64, employed full-time, married non-parent	35.0	32.2	2.8
Age 45-64, employed full-time, unmarried non-parent	39.9	31.5	8.4
Age 45-64, not employed or a student, married non-parent	58.1	49.7	8.4
Age 45-64, not employed or a student, unmarried non-parent	65.1	53.2	11.9
Age 65+, not employed or a student, married non-parent	58.1	51.8	6.3
Age 65+, not employed or a student, living alone	63.7	58.1	5.6

SOURCE: *GSS: Overview of the time use of Canadians in 1998*, Statistics Canada, 1999(b).

Poverty

In spite of all the educational advantages noted in this report, women are still more likely than men to be poor. Female lone parents are particularly susceptible—and they may have either male or female children. Only 16% of lone-parent families in Canada are headed by a man. Statistics Canada had this to say recently on the low-income status of female-headed lone-parent families: "Of the 580,000 lone-parent families headed by a woman, 42.0% were in low income in 1998, down slightly from 46.8% in 1997. Three-quarters of lone-parent families headed by women had earnings in 1998. Of those without earnings, 85.8% were in low income" (Statistics Canada, 2000b). Depth of poverty, also known as average income deficiency, is also a significant issue: the average poor lone-parent female has an income that is $9,000 below Statistics Canada's Low Income Cutoff (LICO) (Townson, 2000).

In B.C. in 1996, about one-quarter (23%) of families with children at home were headed by a lone parent, and a woman was head of 82.8% of those. That translates into approximately 116,800 female lone-parent families (Ministry of Women's Equality, 2000). Assuming that 42% were in low-income results in just under **50,000**

low-income families headed by a female lone parent. This estimate is borne out by B.C. Benefits case data, which show that 54,549 one-parent families—as noted above, at least 80% of which are likely headed by a woman—received income support in 1996. By 1999, it should be noted, only 40,839 lone-parent families were receiving income support, a decline of 25% (Ministry of Social Development and Economic Security, 2000).

Among unattached individuals, **men are almost twice as likely as women to receive income support**, although the ratio has been improving in recent years, from 2.1 in 1995 to 1.7 for the first 6 months of 2000 (***Table 28***). Among youth aged 19-24, 70% more single males than females receive income support. In the 25-59 age group, 2.3 times as many unattached men as women receive income support, while 20% more senior unattached males than females receive benefits. The seniors' ratio is the only one that has been consistent since the B.C. Benefits program was introduced in December 1995.

Table 28

Monthly income support cases, unattached individuals, annual averages 1995 to 2000

	19-24		Ratio	25-59		Ratio	60+		Ratio	Total		Ratio
	Male	Female	(M:F)	Male	Female	(M:F)	Male	Female	(M:F)	Male	Female	(M:F)
1995	18,253	9,110	2.0	57,234	22,357	2.6	14,382	12,237	1.2	89,869	43,704	2.1
1996	13,620	6,902	2.0	52,669	20,849	2.5	14,916	12,534	1.2	81,205	40,285	2.0
1997	10,567	5,684	1.9	46,900	19,064	2.5	16,267	13,638	1.2	73,734	38,386	1.9
1998	9,164	5,050	1.8	41,815	17,433	2.4	17,620	14,792	1.2	68,599	37,275	1.8
1999	8,037	4,442	1.8	37,525	16,320	2.3	18,914	15,798	1.2	64,476	36,560	1.8
2000*	7,858	4,504	1.7	36,034	15,671	2.3	20,299	16,778	1.2	64,190	36,953	1.7

* 6-month average for 2000.

SOURCE: *Monthly Statistics—BC Benefits, June 2000*, Ministry of Social Development and Economic Security, 2000.

The Canadian Council on Social Development provides the following additional information on poverty in British Columbia (1995 data):

- **More than half of families headed by a lone parent are poor in B.C. (52%)—most of these are headed by a woman.**
- Among non-elderly unattached (single) individuals, 43% of women and 38% of men are poor.
- Among elderly unattached (single) individuals, 45% of women are poor compared to 33% of men. (Lee, 2000, p. 130)

Summary

This section provides an overview of the data provided in this report. ***Table 29*** displays whether females or males are at an advantage for each indicator considered, while the lists that follow summarize a number of other variables.

Table 29

Selected gender indicators: Who is relatively more advantaged?

INDICATOR	MALE	FEMALE
Six-year Dogwood completion rate		✓
Six-year Dogwood completion rate, Aboriginal students		✓
Graduates as a percentage of September Grade 12 enrolment		✓
Employment, secondary school completers		✓
Employment, secondary school non-completers	✓	
Ease with "computer culture"	✓	
Provincial exam participation		
Physics	✓	
Math	✓	
Communications	✓	
All others except Geology		✓
Average school marks, all examinable subjects		✓
Average provincial exam marks		
Geology, Geography, History, Chemistry	✓	
All other examinable subjects except Mathematics and Biology		✓
Honours graduates		✓
Provincial scholarship winners		✓
Provincial gold-medal winners	✓	
Foundation Skills Assessment (FSA) reading and writing		✓
Gifted designation		✓

continued...

INDICATOR	MALE	FEMALE
TIMSS RESULTS:		
Mathematics achievement, Grade 4	✓	
Science achievement, Grade 4	✓	
Mathematics achievement, Grade 8		✓
Science achievement, Grade 8	✓	
Mathematics and science literacy, Grade 12	✓	
Reasoning and social utility, Grade 12	✓	
Advanced mathematics, Grade 12	✓	
Physics, Grade 12	✓	
Post-secondary qualifications		
Commerce, health, education, fine arts, humanities		✓
Engineering, applied science, math and physical sciences	✓	
Eligibility for direct admission to university		✓
Participation in post-secondary education, youth ages 18-24		✓
Post-secondary enrolment		
Registered apprenticeship programs	✓	
Skill upgrading programs	✓	
College university transfer and career programs		✓
University undergraduate		✓
University graduate	✓	
University undergraduate agricultural and biological sciences and social sciences; undergraduate and graduate education, fine and applied arts, health professions, humanities, general arts and sciences		✓
University undergraduate and graduate engineering and applied sciences, mathematics and physical sciences; graduate agricultural and biological sciences	✓	
Bachelor and first professional degrees		✓
Master degrees		✓
Earned doctorates	✓	

continued...

INDICATOR	MALE	FEMALE
College/institute outcomes		
Grade point average (GPA)		✓
Program satisfaction		✓
Co-operative education participation	✓	
Labour force participation	✓	
Median gross monthly salary	✓	
Full-time work	✓	
Health		
Life expectancy at birth		✓
Absence of chronic disease and disability	✓	
Adolescents' self-ratings of health	✓	
Absence of stomachache, headache, backache, etc.	✓	
Absence of emotional health problems	✓	
Adequate exercise	✓	
Adequate birth weight	✓	
Absence of childhood cancers		✓
Non-smoker	✓	
Lower injury rate		✓
Lower mortality rate		✓
Fewer hospital admissions		✓
Workplace safety		✓
Adequate time for family, friends and leisure	✓	
Mental health (except suicide)	✓	
Self-acceptance of body image	✓	

continued...

INDICATOR	MALE	FEMALE
Occupations		
Skilled crafts and tradespersons, trades supervisors, manual workers, senior managers, middle managers, skilled sales and service, semi-professional/technical	✓	
Administrative and clerical, sales and service, clerical supervisors, professionals		✓
Teachers		✓
Administrative officers	✓	
Superintendents	✓	
University faculty	✓	
College instructors	✓	
Labour force participation, except 15-24 years of age	✓	
Earnings from work	✓	
Median total income	✓	
Economic adequacy/self-sufficiency	✓	
High-technology career preparation	✓	

The following lists attempt to describe some other facets of being male or female at the turn of the millennium.

Males are more likely than females to:

- be identified as having the following special needs (in descending order relative to females):
  - autism
  - moderate behaviour disorder
  - severe behaviour disorder
  - severe learning disability
  - physical disability
  - visual impairment
  - mild intellectual disability
  - behaviour disorder—rehabilitation
  - deaf/hard of hearing

  - moderate to severe/profound mental disability
  - deaf/blind.
- commit suicide (although females have more suicidal thoughts and attempt suicide more often).
- want to gain weight, have muscle dysmorphia.
- be affected by "masculinity ideology."
- be frequently involved in fights.
- have been threatened with physical harm or physically assaulted.
- feel unsafe at school.
- be bullied.
- bully.
- be charged with a crime.
- be victims of criminal acts by other youths.
- receive a tougher sentence in court for the same crime.
- be involved in robbery, major assault and other serious violent crimes.
- be disproportionately both victims and perpetrators of homicide, except for spousal homicide (two-thirds of all homicide victims and 90% of those accused of murder are male).
- experience overt or covert violence and to be the victims of property damage (as teachers).
- be perpetrators of violence against teachers.
- be stalked.
- be sexual harassers.
- have higher labour force participation and unemployment rates in every age group.
- earn minimum wage in 20-24 age group.
- have more paid work hours in every age and role group except for unmarried youth ages 18-24, employed full-time.
- work as a truck driver.
- have more leisure time than females in every age-role group
- receive income support when unattached.

Females are more likely to:

- be identified in the physically dependent special needs category (slightly).
- want to lose weight, have eating disorders such as anorexia nervosa and bulimia.
- be depressed, have suicidal thoughts, attempt suicide (although males commit suicide more often)
- feel time-stressed.
- smoke.
- be negatively affected by early sexual activity, teenage pregnancy.
- be a lone parent and to be in low-income if a lone parent.
- have been verbally harassed.
- receive a lighter sentence such as being put on probation if sentenced.
- be increasingly charged with violent crimes.
- be 14-15 when involved in crime.
- be a victim of spousal homicide (80% of spousal homicide victims are female).
- be victimized by severe domestic violence
- have been physically abused in childhood and adolescence.
- have been sexually abused (as adolescents, 5 times more likely than males).
- inflict covert violence on teachers during parent-teacher interviews (as parents).
- experience sexual harassment.
- have lower labour force participation rates.
- work part-time involuntarily.
- work as a retail salesperson.
- earn minimum wage, except for those aged 20-24.
- do more unpaid work than men in all age and role groups.
- be poor if non-elderly or elderly.

Discussion

Opponents of public education and those who wish to sell newspapers occasionally invent crises in an attempt to discredit the system (BCTF, 2000b). This inclination is not limited to Canada or even North America. Discussing primary literacy, *The Times Educational Supplement* recently wrote in an editorial: "There is a tendency in British education to assume the worst on flimsy evidence, and then react accordingly. It's a propensity exacerbated by the mainstream media, always eager to prise open the smallest chink in anyone's armour—be they politician, policy adviser or primary teacher" ("Talk well," 1998).

That said, the data examined in this report reveal that **a stunning amount of gender stereotyping remains in British Columbia's public education system**, from Kindergarten through graduate school and beyond. Males still dominate in the "hard" sciences, technology and engineering, while females still dominate in the arts and the helping professions. Women do more housework, men have more leisure time. Men earn the big bucks, women tend to get part-time, low-paying jobs. **There is no evidence that this situation is imposed, caused, or condoned by public schools.** Stronger forces are obviously at work here, particularly the myths of masculinity and femininity and the glorification of violence that are transmitted in families throughout the land and reinforced by the mass media, and an overarching view of education as passive absorption of atomized bits of information which can be measured by **grades, standardized tests, scholarships**, and similar outcomes. Experience with standardized tests in the U.K., for example, has demonstrated dramatically that measurements of literacy are greatly affected by the content of testing instruments.

Given the range of factors that reflect, define and describe our lives, it would be a tremendous oversimplification to say that schools are failing boys. Schools are within society—certainly those who routinely condemn schools would not wish them to be a force for radical change? On the other hand, teachers' wishes for both boys and girls to succeed in school—the stimulus for this report—can best be effected through a constructivist approach that treats each child, male or female, as an individual. In terms of one of the most contentious gender areas—reading—this would involve **gearing reading materials to the interests and abilities of individuals, then moving beyond their interests to "fill in the gaps."** For example, a particular boy may prefer adventure stories, and factual and technical information. In this case, the teacher would work to find appropriate materials that appeal to the child, but might also search for "crossovers" that would also enhance his emotional literacy. Alternatively, a particular girl might prefer fantasy, and narratives that deal with interpersonal relationships, materials the teacher might wish to supplement with appealing documents to enhance the girl's analytical skills and information-handling ability.

In this way, teachers can do their best to keep students' options open, so both science and the arts, technology and the caring professions—and the combinations

thereof that will increasingly become part of our daily landscape—remain open to them, as well as the non-economic facets of being a person. There is little doubt that many if not most teachers already operate in this manner. What critics of education must frequently be reminded of, however, is that students are dramatically affected by their socio-economic status, the neighbourhoods in which they grow up—or are uprooted from all too frequently—their family type, parenting style, their peers, cultural background, and so forth. In other words, a myriad of powerful factors that schools and teachers can attempt to counteract—to some extent. **These factors are intertwined with gender: Which boys earn gold medals for perfect scores on three scholarship exams? Which girls drop out of school, take up smoking, and become lone teenage parents?**

In this context, certain aspects of male and female experience in school do deserve particular attention.

School safety: We have seen that male students fight more frequently than female students, are more often threatened with physical harm or physically assaulted, are more likely to feel unsafe at school, and are more likely to be bullied, bully, and inflict violence on their teachers. We have also seen that male teachers experience more overt or covert violence than their female counterparts, are more often the victims of property damage, and are more likely to be stalked. **A student who does not feel safe cannot learn well.** It is therefore imperative that school safety programs, including **anti-bullying initiatives and insistence upon an atmosphere of respect**, be one of the highest priorities in today's schools.

Closely related are **programs to counteract homophobia and heterosexism**. Sadly, reports of suicide among youth who have been harassed for being gay (whether they are or not) are all too common in British Columbia. One young man is taking a different approach, asking the B.C. Human Rights Tribunal to find the North Vancouver school board guilty of discrimination for allowing other students to harass him in secondary school from 1993 to 1998. He is claiming more than $80,000 in damages (Alphonso, 2000).

Also necessary is further research to **uncover the reasons for male teachers' higher risk of being victimized by violence**. Once these factors are unraveled, programs can be developed to counteract these factors.

Educational technology: Simply put, to avoid present and future ghettoization, students and teachers, male and female, attuned to computer culture or not, should have access to educational technology. This will require ample and appropriate pre-service and in-service education for teachers on how to infuse educational technology into the entire curriculum. Adequate educational funding of these ventures is, of course, a fundamental requirement. Teachers must also have ready access to technology to "play with," learn about and become comfortable enough with to develop their own lessons. In some districts, teachers can use professional development funds to purchase personal computers. This option should be investigated.

Special needs: The data indicate that boys are more frequently *identified* as having special needs than are girls. There is evidence that females with attention deficit disorder, for example, are often overlooked, perhaps because they are more likely to daydream than be hyperactive. The special needs that exhibit this type of **identification gender gap** are often those in which the student does not meet the socialization or self-control required to participate in the classroom, such as the moderate and severe behaviour categories.

A variety of factors are involved. Some are physiological or medical in nature—such as attention deficit disorder or autism, while others are social in nature—such as expressing anger or acting out in other ways in response to unmet needs. **It appears that boys are more likely than girls to be disruptive in the classroom**. And, since the behaviour identified as a problem often has to do with relationships, **those actions that are disruptive to other students, rather than harmful to the student himself or herself, are those most likely to lead to a special needs designation**. Behaviours that damage the student himself or herself, rather than others, are less likely to be identified; such students, therefore, are less likely to get the extra help that can come with identification. In the current system, this is more likely to be girls.[17]

In the rush to ensure that boys are not shortchanged, it is important to ensure that the needs of less-vocal females are being met. The costs of not doing so are great.

Sex education: Medical health officers in B.C. have recently expressed concern about the consistency and adequacy of sex education in B.C., in light of growing complacency about HIV and AIDS among young gay men. While the ministry-prescribed learning outcomes for Family Life Education may appear adequate on the surface (although the name may not reflect many young people's experience of sexuality), there is no information to indicate whether and how the outcomes are being addressed in all the different classrooms in the province. The BCTF may wish to consider whether recommending a review is in order.

Also relevant to this area of CAPP is sharing information on the importance of parenting to boys' and girls' health and adaptability. The new brain research has much to say on this topic.

Data: The Ministry of Education stopped collecting data on students' course choices by gender as well as teachers' subjects by gender in 1996. Reinstating this data collection and even augmenting it to include other variables would allow informed discussion of males' and females' preferences and preparation prior to post-secondary education. Without it, little can be said.

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[17] I would like to express my appreciation to Larry Kuehn, Director, BCTF Research and Technology, for helping me formulate my thoughts on this topic, and for suggesting much of the wording.

Raising economic awareness among both females and males: While CAPP may have components related to awareness of income and earnings from different occupations, females' propensity to become low-income lone parents, to work part-time and in low-paying jobs, and to live in poverty, and males' tendency to rely on income assistance, indicate the need for more education in this area. Government cutbacks of income-support programs are likely to accelerate rather than reverse, and economic self-reliance will be essential for both males and females.

Sensitivity: It is imperative that schools and teachers be sensitive to both boys' and girls' achievement and self-esteem needs. It is too easy to overlook a student's mental health status when she or he is doing well at school. Teachers and parents would do well to ask themselves the cost of high achievement.

Workplace safety: Data from the Workers' Compensation Board clearly indicate that young males are at high risk of workplace injury and death. Education partners should ensure that existing educational materials are used in the schools so boys get the message from an early age.

While these actions in and of themselves cannot halt or reverse existing social mores surrounding gender, they do provide policy options that are within educators' reach. They may be only a drop in the ocean but, as Mother Teresa said, "the ocean is made up of drops."

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Notes

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